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JVC HV-32D25EUW SERVICE MANUAL

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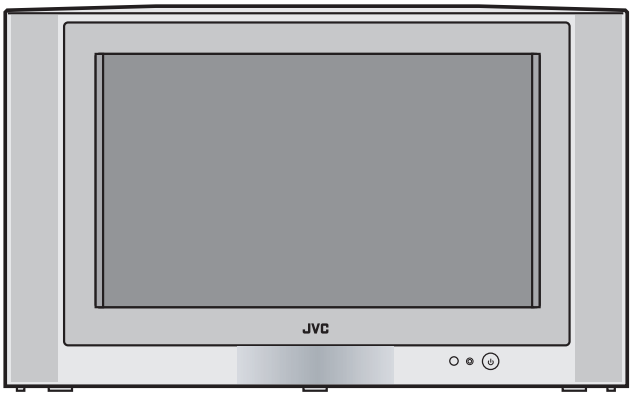
JVC

SERVICE MANUAL

COLOUR TELEVISION

HV-32D25EUW
HV-32D25EJW

BASIC CHASSIS
MK



D.I.S.T. 1250i
InteríArt
Natural Vision
T-V LINK

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SPECIFICATION

Item		Content	
		HV-32D25EUW	**HV-32D25EJW**
Dimensions (W x H x D)		94.6cm x 56.2cm x 55.1cm	
Mass		58.0kg	
TV RF System		CCIR B/G, I, D/K, L/L'	
Colour System		PAL / SECAM / NTSC *The EXT terminals also support the NTSC 3.58MHz/4.43MHz system.	
Stereo System		A2 (B/G, D/K) / NICAM (B/G, I, D/K, L)	
Teletext System		FLOF(Fastext), TOP, WST(World Standard system)	
Receiving Frequency	VHF UHF CATV	47MHz ~ 470MHz 470MHz ~ 862MHz 116MHz ~ 172MHz / 220MHz ~ 469MHz	47MHz ~ 470MHz (IRELAND only) 470MHz ~ 862MHz - -
Intermediate Frequency	VIF SIF	38.9MHz(B/G, D/K, I) / 33.95MHz(L') 33.4MHz(5.5MHz:B/G) / 32.9MHz(6.0MHz:I) / 32.4MHz(6.5MHz:L,D/K) / 40.45MHz(6.5MHz:L')	
Colour Sub Carrier Frequency	PAL SECAM NTSC	4.43MHz 4.40625MHz / 4.25MHz 3.58MHz / 4.43MHz	
Power Input		AC 220V~AC240V, 50Hz	
Power Consumption		Max 300W / Avg. 160W	
Aerial Input		75 ohm unbalanced, coaxial	
Picture Tube		Visible size 76 cm(measured diagonally) Aspect ratio 16:9	
High Voltage		31.0kV ± 0.2kV (At beam current : 0uA)	
Speaker	MAIN CENTER WOOFER	10W + 10W, 13 cm x 6.5 cm oval x2 7.5W, 16 cm x 4 cm oval x 1 18W, 13 cm round x 1	
EXT-1 (Input/Output)		21 pin Euro connector (SCART socket) • Video input, Audio L/R inputs and RGB inputs are available. • TV broadcast outputs (Video and Audio L/R) are available.	
EXT-2 (Input/Output)		21 pin Euro connector (SCART socket) • Video input, S-Video (Y/C) input, Audio L/R inputs and RGB inputs are available. • Video and Audio L/R outputs are available. • T-V LINK functions are available.	
EXT-3 (Input/Output)		21 pin Euro connector (SCART socket) • Video input, S-Video (Y/C) input and Audio L/R inputs are available.	
EXT-4 (Input)	Component video	RCA pin jack x 3 Y : 1V(p-p), 75 ohm Pb / B-Y: 0.7V(p-p), 75 ohm Pr / R-Y : 0.7V(p-p), 75 ohm Progressive-scanning signals(626p or 525p) are available	
	Audio (L/R)	500mv(rms) (-4dBs), High Impedance RCA pin jack x 2	
EXT-5 (Input)	Video	1V(p-p), 75 ohm RCA pin jack x 1	
	Audio (L/R)	500mv(rms) (-4dBs), High Impedance RCA pin jack x 2	
	S-Video	Mini DIN 4-pin Y : 1V(p-p) Positive (Negative sync provided), 75 ohm C : 0.286V(p-p) (burst signal), 75 ohm	
DIGITAL AUDIO INPUT		OPTICAL x 1 COAXIAL x 1 (Dolby Digital is available.)	
AUDIO OUT (Variable)		0~1V(rms), Low Impedance RCA pin jack x 3	
SURROUND REAR OUT		7.5W + 7.5W, 8 ohm (push terminal)	
Headphone jack		Stereo mini jack (Ø3.5mm)	
Remote Control Unit		RM-C61 (AAA/R03 Dry cell battery x 2) : HV-32D25EUW RM-C62 (AAA/R03 Dry cell battery x 2) : HV-32D25EJW	

Design & specifications are subject to change without notice.

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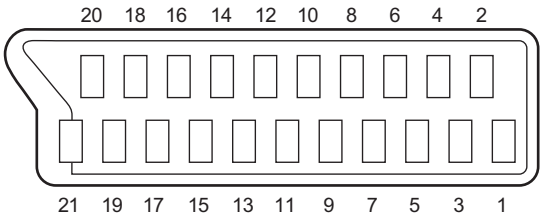
21-pin Euro connector (SCART) : EXT-1/EXT-2/EXT-3

PinNo.	Signal Designation	Matching Value	EXT-1	EXT-2	EXT-3
1	AUDIO R output	500mV(rms) (Nominal), Low impedance	Used (TV OUT)	Used (LINE OUT)	NC
2	AUDIO R input	500mV(rms) (Nominal), High impedance	Used	Used	Used
3	AUDIO L output	500mV(rms) (Nominal), Low impedance	Used (TV OUT)	Used (LINE OUT)	Not used
4	AUDIO GND		Used	Used	Used
5	GND (B)		Used	Used	Used
6	AUDIO L input	500mV(rms) (Nominal), High impedance	Used	Used	Used
7	B input	$700mV_{(B-W)}$, 75 ohm	Used	Used	Not used
8	FUNCTION SW (SLOW SW)	Low : 0V-3V, High : 8V-12V, High impedance	Used	Used	Used
9	GND (G)		Used	Used	Used
10	SCL		Not used	Used (SCL2)	Used (SCL3)
11	G input	$700mV_{(B-W)}$, 75 ohm	Used	Used	Not used
12	SDA		Not used	Used(SDA2)	Used(SDA3)
13	GND (R)		Used	Used	Used
14	GND (YS)		Used	Not used	Not used
15	R / C input	R : $700mV_{(B-W)}$, 75 ohm C : $300mV_{(P-P)}$, 75 ohm	Used (R)	Used (C2/R)	Used (C3)
16	Ys input (FAST SW)	Low : 0V-0.4V, High : 1V-3V, 75 ohm	Used	Used	Not used
17	GND (VIDEO output)		Used	Used	Used
18	GND (VIDEO input)		Used	Used	Used
19	VIDEO output	$1V_{(P-P)}$ (Negative going sync), 75 ohm	Used (TV OUT)	Used (LINE OUT)	Not used
20	VIDEO / Y input	$1V_{(P-P)}$ (Negative going sync), 75 ohm	Used	Used	Used
21	COMMON GND		Used	Used	Used

(P-P= Peak to Peak, B-W= Blanking to white peak)

[Pin assignment]



SECTION 1
SAFETY PRECAUTIONS

1.1 HV-32D25EUW

(1) The design of this product contains special hardware, many circuits and components specially for safety purposes. For continued protection, no changes should be made to the original design unless authorized in writing by the manufacturer. Replacement parts must be identical to those used in the original circuits. Service should be performed by qualified personnel only.

(2) Alterations of the design or circuitry of the products should not be made. Any design alterations or additions will void the manufacturer's warranty and will further relieve the manufacturer of responsibility for personal injury or property damage resulting therefrom.

(3) Many electrical and mechanical parts in the products have special safety-related characteristics. These characteristics are often not evident from visual inspection nor can the protection afforded by them necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in the parts list of Service manual. **Electrical components having such features are identified by shading on the schematics and by (⚠) on the parts list in Service manual**. The use of a substitute replacement which does not have the same safety characteristics as the recommended replacement part shown in the parts list of Service manual may cause shock, fire, or other hazards.

(4) **Don't short between the LIVE side ground and ISOLATED (NEUTRAL) side ground or EARTH side ground when repairing.**
Some model's power circuit is partly different in the GND. The difference of the GND is shown by the LIVE : (⊥) side GND, the ISOLATED (NEUTRAL) : (⏚) side GND and EARTH : (⏚) side GND.
Don't short between the LIVE side GND and ISOLATED (NEUTRAL) side GND or EARTH side GND and never measure the LIVE side GND and ISOLATED (NEUTRAL) side GND or EARTH side GND at the same time with a measuring apparatus (oscilloscope etc.).
If above note will not be kept, a fuse or any parts will be broken.

(5) If any repair has been made to the chassis, it is recommended that the B1 setting should be checked or adjusted (See ADJUSTMENT OF B1 POWER SUPPLY).

(6) The high voltage applied to the picture tube must conform with that specified in Service manual. Excessive high voltage can cause an increase in X-Ray emission, arcing and possible component damage, therefore operation under excessive high voltage conditions should be kept to a minimum, or should be prevented. If severe arcing occurs, remove the AC power immediately and determine the cause by visual inspection (incorrect installation, cracked or melted high voltage harness, poor soldering, etc.). To maintain the proper minimum level of soft X-Ray emission, components in the high voltage circuitry including the picture tube must be the exact replacements or alternatives approved by the manufacturer of the complete product.

(7) Do not check high voltage by drawing an arc. Use a high voltage meter or a high voltage probe with a VTVM. Discharge the picture tube before attempting meter connection, by connecting a clip lead to the ground frame and connecting the other end of the lead through a 10kΩ 2W resistor to the anode button.

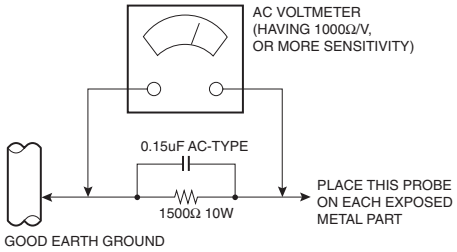
(8) When service is required, observe the original lead dress. Extra precaution should be given to assure correct lead dress in the high voltage circuit area. Where a short circuit has occurred, those components that indicate evidence of overheating should be replaced.
Always use the manufacturer's replacement components.

(9) **Isolation Check**
(Safety for Electrical Shock Hazard)
After re-assembling the product, always perform an isolation check on the exposed metal parts of the cabinet (antenna terminals, video/ audio input and output terminals, Control knobs, metal cabinet, screw heads, earphone jack, control shafts, etc.) to be sure the product is safe to operate without danger of electrical shock.

a) **Dielectric Strength Test**
The isolation between the AC primary circuit and all metal parts exposed to the user, particularly any exposed metal part having a return path to the chassis should withstand a voltage of 3000V AC (r.m.s.) for a period of one second.
(. . . . Withstand a voltage of 1100V AC (r.m.s.) to an appliance rated up to 120V, and 3000V AC (r.m.s.) to an appliance rated 200V or more, for a period of one second.)
This method of test requires a test equipment not generally found in the service trade.

b) **Leakage Current Check**
Plug the AC line cord directly into the AC outlet (do not use a line isolation transformer during this check.). Using a "Leakage Current Tester", measure the leakage current from each exposed metal part of the cabinet, particularly any exposed metal part having a return path to the chassis, to a known good earth ground (water pipe, etc.). Any leakage current must not exceed 0.5mA AC (r.m.s.).
However, in tropical area, this must not exceed 0.2mA AC (r.m.s.).

Alternate Check Method
Plug the AC line cord directly into the AC outlet (do not use a line isolation transformer during this check.). Use an AC voltmeter having 1000 ohms per volt or more sensitivity in the following manner. Connect a 1500 ohm 10W resistor paralleled by a 0.15µF AC-type capacitor between an exposed metal part and a known good earth ground (water pipe, etc.). Measure the AC voltage across the resistor with the AC voltmeter. Move the resistor connection to each exposed metal part, particularly any exposed metal part having a return path to the chassis, and measure the AC voltage across the resistor. Now, reverse the plug in the AC outlet and repeat each measurement. Any voltage measured must not exceed 0.75V AC (r.m.s.). This corresponds to 0.5mA AC (r.m.s.).
However, in tropical area, this must not exceed 0.3V AC (r.m.s.). This corresponds to 0.2mA AC (r.m.s.).



1.2 HV-32D25EJW [UK VERSION]

(1) The design of this product contains special hardware and many circuits and components specially for safety purposes. For continued protection, no changes should be made to the original design unless authorized in writing by the manufacturer. Replacement parts must be identical to those used in the original circuits. Service should be performed by qualified personnel only.
(2) Alterations of the design or circuitry of the product should not be made. Any design alterations or additions will void the manufacturer's warranty and will further relieve the manufacturer of responsibility for personal injury or property damage resulting therefrom.
(3) Many electrical and mechanical parts in the product have special safety-related characteristics. These characteristics are often not evident from visual inspection nor can the protection afforded by them necessary be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in the Parts List of Service Manual. Electrical components having such features are identified by shading on the schematics and by (⚠) on the Parts List in the Service Manual. The use of a substitute replacement which does not have the same safety characteristics as the recommended replacement part shown in the Parts List of Service Manual may cause shock, fire, or other hazards.
(4) The leads in the products are routed and dressed with ties, clamps, tubing's, barriers and the like to be separated from live parts, high temperature parts, moving parts and / or sharp edges for the prevention of electric shock and fire hazard. When service is required, the original lead routing and dress should be observed, and it should be confirmed that they have been returned to normal, after re-assembling.

WARNING

(1) The equipment has been designed and manufactured to meet international safety standards.
(2) It is the legal responsibility of the repairer to ensure that these safety standards are maintained.
(3) Repairs must be made in accordance with the relevant safety standards.
(4) It is essential that safety critical components are replaced by approved parts.
(5) If mains voltage selector is provided, check setting for local voltage.

SECTION 2
SPECIFIC SERVICE INSTRUCTIONS

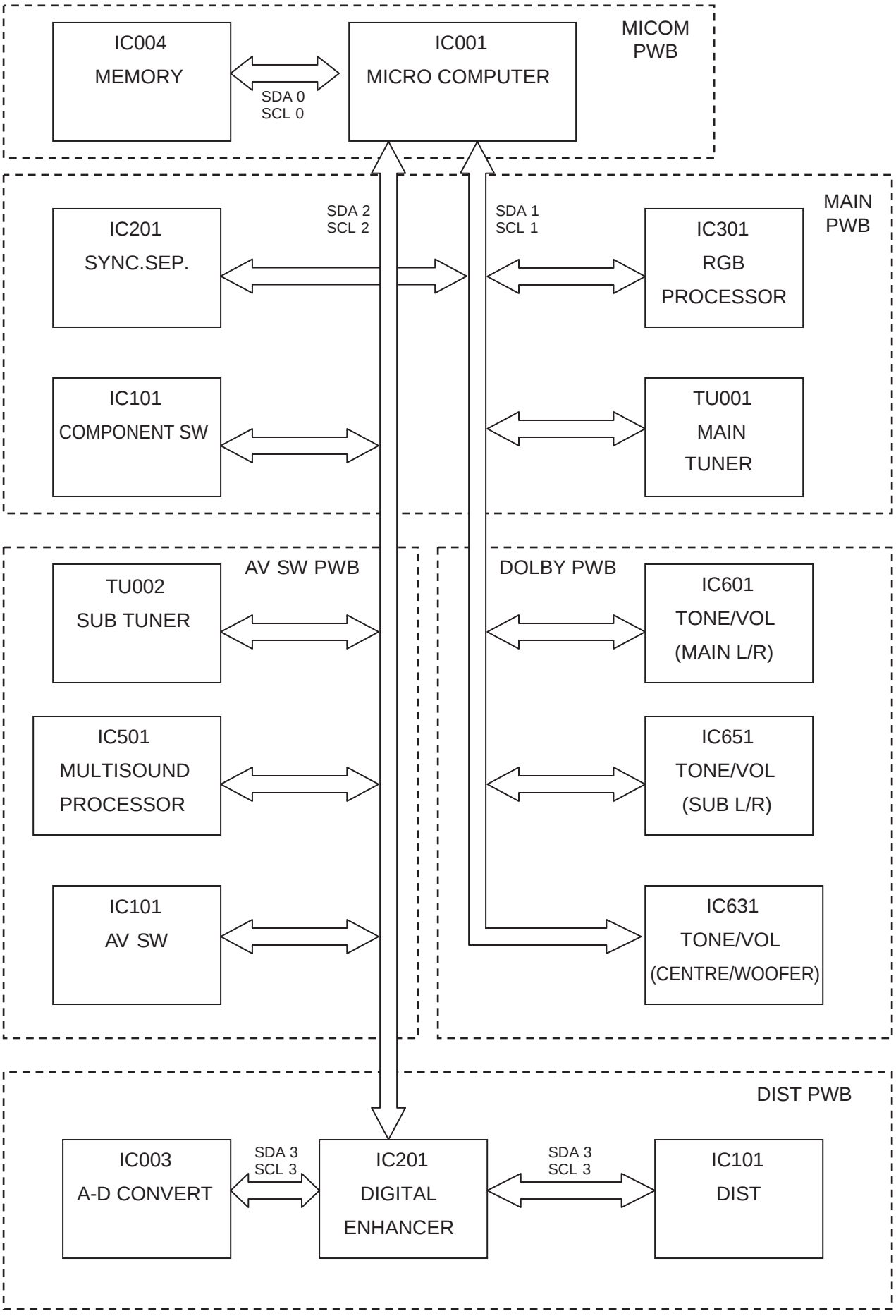
2.1 MAIN DIFFERENCE LIST

⚠	ITEM	HV-32D25EUW	HV-32D25EJW
⚠	POWER CORD	QMPK160-185-JC	QMPN130-185-JC
	REMOTE CONTROL UNIT	RM-C61-1C	RM-C62-1C
⚠	INST BOOK	LCT1272-001A-U LCT1273-001A-U LCT1274-001A-U	LCT1271-001A-U
⚠	RATING LABEL	LC11548-003A-U	LC11364-018A-U
	EURO LABEL	AEM1064-034-E	AEM1064-035-E

2.1.1 FEATURES

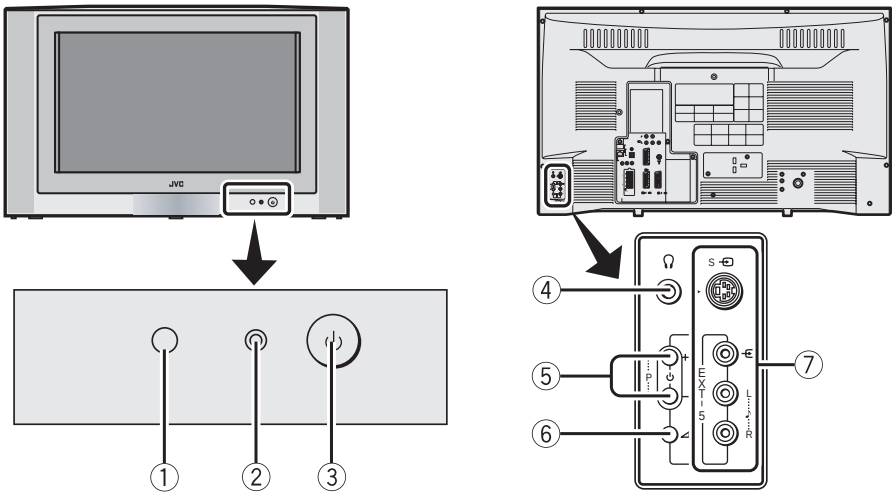
- DIST (Digital Image Scaling Technology) employs an interpolation method that doubles the scanning lines to realize 1250-line flicker-free picture making it especially suitable for reproducing high-resolution pictures even on large-screen displays.
- New chassis design enables use of an interactive on-screen control.
- Pure flat CRT produces fine textured picture in every detail.
- With AUDIO/VIDEO/COMPONENT input terminals.
- I^2C bus control utilizes single chip ICs.
- By means of AUTO PROGRAM, the TV stations can be selected automatically and the TV channels can also be rearranged automatically.

2.2 SYSTEM BLOCK



2.3 FUNCTIONS

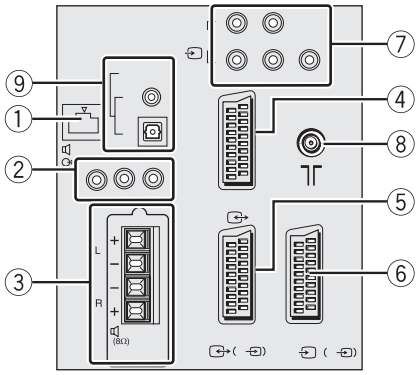
2.3.1 FRONT CONTROL & REAR (SIDE) TERMINAL



Refer to the pages in brackets for details.

① Remote control sensor
② Power lamp (GREEN : Operation, RED : Stand-by)
③ Main power button
④ Headphone jack (mini jack)
⑤ Channel up/down & Volume +/- buttons
⑥ Volume button
⑦ EXT-5 terminal

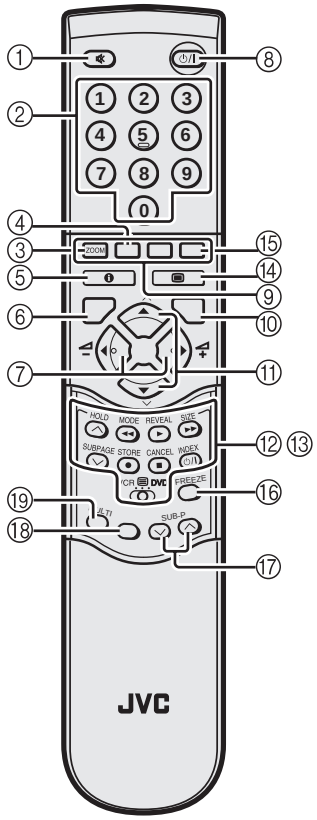
2.3.2 REAR TERMINAL



① Woofer terminal
② AUDIO OUT terminal
③ SURROUND REAR terminal
④ EXT-1 terminal
⑤ EXT-2 terminal
⑥ EXT-3 terminal
⑦ EXT-4 terminal
⑧ Aerial socket
⑨ DIGITAL AUDIO IN terminal

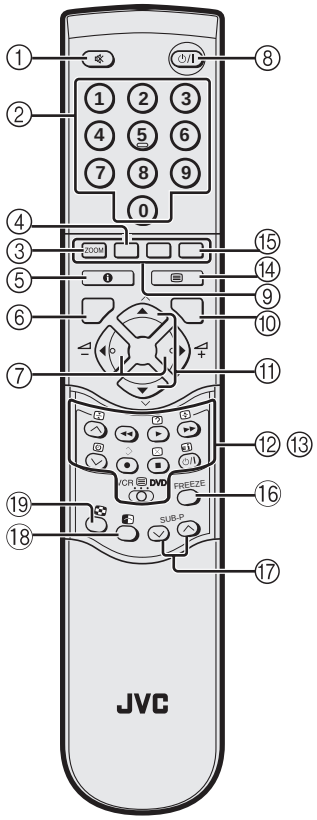
2.3.3 REMOTE CONTROL UNIT

RM-C62 : HV-32D25EJW



① Muting button
② Number buttons
③ **ZOOM** button
④ **3D** sound button
⑤ Information button
⑥ **TV** button
⑦ ◀/▶ buttons
⑧ Standby button
⑨ Colour buttons
⑩ **OK** button
⑪ ▲/▼ buttons
⑫ VCR/DVD/Teletext control button
⑬ VCR ☰ DVD switch
⑭ ☰ (Text) button
⑮ **PIP** button
⑯ **FREEZE** button
⑰ **SUB-P** ∨/∧ button
⑱ **SWAP** button
⑲ **MULTI** button

RM-C61 : HV-32D25EUW



① Muting button
② Number buttons
③ **ZOOM** button
④ **3D** sound button
⑤ Information button
⑥ **TV** button
⑦ ◀/▶ buttons
⑧ Standby button
⑨ Colour buttons
⑩ **OK** button
⑪ ▲/▼ buttons
⑫ VCR/DVD/Teletext control button
⑬ VCR ☰ DVD switch
⑭ ☰ (Text) button
⑮ **PIP** button
⑯ **FREEZE** button
⑰ **SUB-P** ∨/∧ button
⑱ button
⑲ button

2.4 DISASSEMBLY PROCEDURE

2.4.1 REMOVING THE SUB WOOFER UNIT & THE REAR COVER

(1) Unplug the power cord.
(2) Remove the SUB WOOFER CORD from the TERMINAL AV TERMINAL BOARD.
(3) Pull up the SUB WOOFER UNIT on the top of the REAR COVER upward.
(4) Remove the 13 screws [A] as shown in the Fig. 1
(5) Withdraw the REAR COVER toward you.

2.4.2 REMOVING THE SIDE CONTROL JACK ASSEMBLY

*Remove the REAR COVER.
(1) Remove the 1 screw [B] as shown in the Fig.1.
(2) While slightly raise the SIDE CONTROL JACK ASSEMBLY, remove the 2 claws under the SIDE CONTROL JACK ASSEMBLY.
(3) Disconnect the connector F and CN8016 as shown in Fig. 2.

2.4.3 REMOVING THE SIDE CONTROL PWB

* Remove the REAR COVER.
* Remove the SIDE CONTROL ASSEMBLY.
(1) Remove the 3 claws [C] from back side of the SIDE CONTROL JACK ASSEMBLY as shown in Fig. 2.
(2) Pull out the SIDE CONTROL PWB.

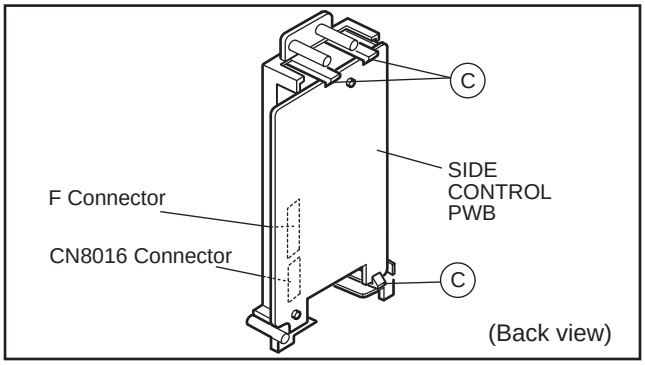


Fig.2

2.4.4 REMOVING THE MAIN CHASSIS

* Remove the REAR COVER.
(1) Slightly raise the both sides of the MAIN CHASSIS by hand and remove the two claws under the both sides of the MAIN CHASSIS from the front cabinet
(2) Withdraw the MAIN CHASSIS backward.
(If necessary, take off the wire clamp, connectors etc.)

2.4.5 REMOVING THE POWER & DEF. PWB

* Remove the MAIN CHASSIS.
(1) Remove the 3 screws [D] as shown in Fig. 1.
(2) Remove the POWER & DEF. PWB upper.
(If necessary, take off the wire clamp, connectors etc.)

2.4.6 REMOVING THE CENTER SPEAKER

* Remove the REAR COVER
* Remove the MAIN CHASSIS.
(1) Remove the 2 screws [E] as shown in Fig. 1.
(2) Remove the CENTER SPEAKER. If necessary, detach the cables.

2.4.7 REMOVING THE SIDE SPEAKER

*Remove the REAR COVER
(1) Remove the 2 screws [F], and remove the speaker adapter as shown in Fig. 1

NOTE:

When removing the 2 screws marked [F] of the speaker adapter remove the lower side screw first, and then remove the upper one

(2) Remove the 4 screws [G] attaching the SIDE SPEAKER.
(3) Follow the same steps when removing the other hand speaker.

2.4.8 REMOVING THE AV TERMINAL BOARD

* Remove the REAR COVER.
(1) Remove the 8 screws [H] as shown in the Fig. 1.
(2) Remove the 3 claws [I] under the CHASSIS as shown in Fig. 3
(3) Remove the AV TERMINAL BOARD slightly in the direction of arrow [J] as shown in Fig. 3.
(4) After removing the 1 clow [K] on the connector for SUB WOOFERS pull out the connector for SUB WOOFER. (Fig. 4)

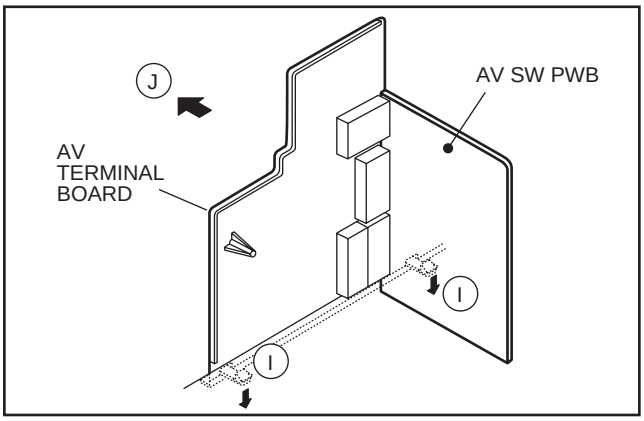


Fig.3

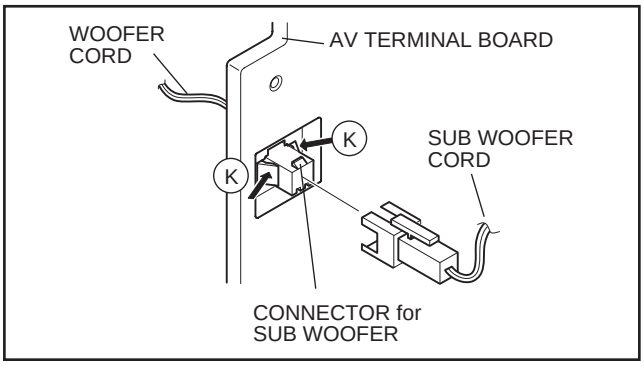


Fig.4

2.4.9 CHECKING THE PW BOARD

(1) Pull out the MAIN CHASSIS. (Refer to REMOVING THE MAIN CHASSIS)
(2) Erect the MAIN CHASSIS vertically so that you can easily check the back side of the PW board.

CAUTION:

- When erecting the MAIN CHASSIS, be careful so that there will be no contacting with other PW board.
- Before turning on power, make sure that the wire connector is properly connected.
- When conducting a check with power supplied, be sure to confirm that the CRT EARTH WIRE (BRAIDED ASS.Y) is connected to the CRT SOCKET PW board.

2.4.10 WIRE CLAMPING AND CABLE TYING

(1) Be sure to clamp the wire.
(2) Never remove the cable tie used for tying the wires together. Should it be inadvertently removed, be sure to tie the wires with a new cable tie.

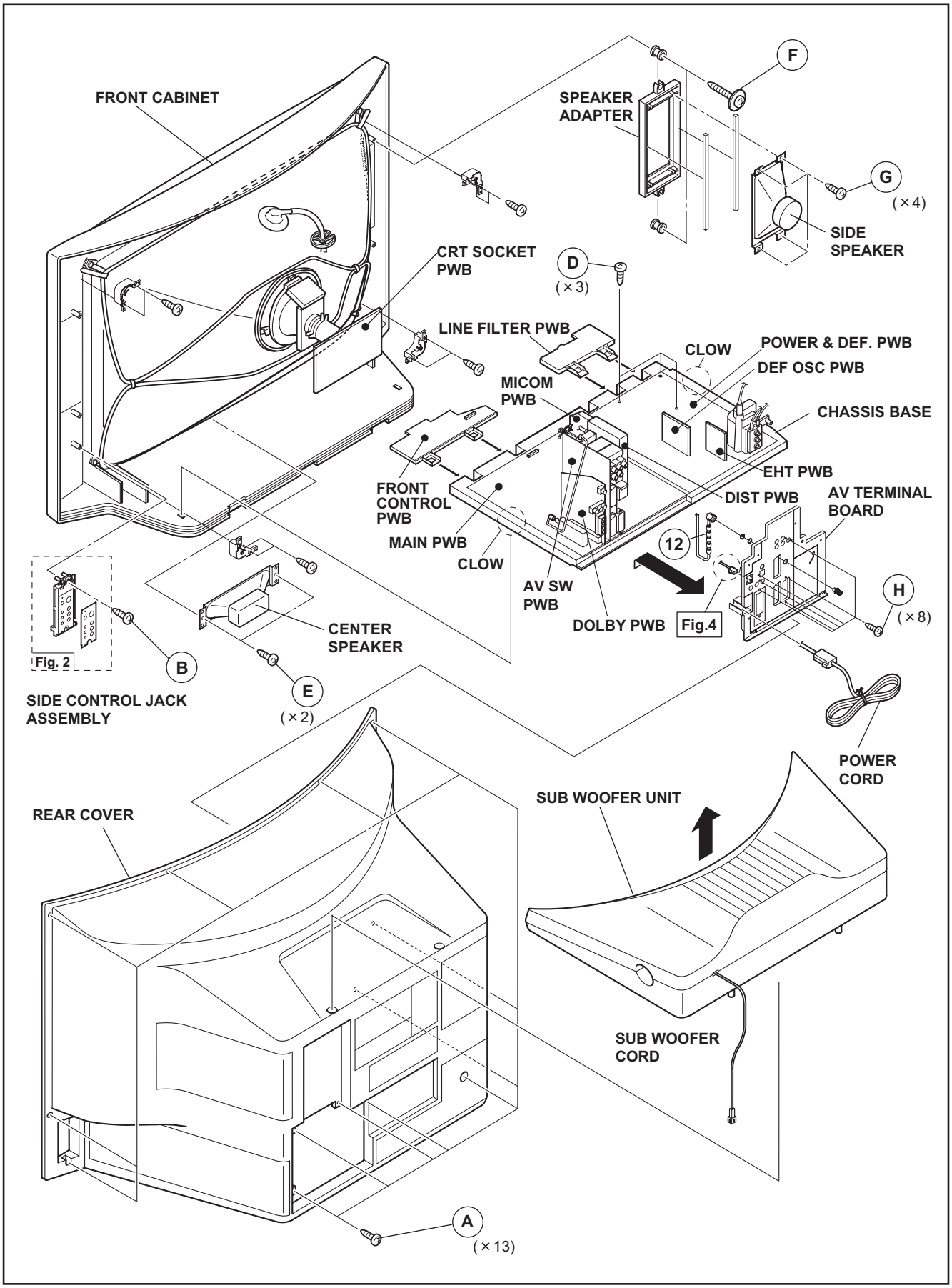

FRONT CABINET
SPEAKER ADAPTER
F
G
(×4)
SIDE SPEAKER
CRT SOCKET PWB
D
(×3)
LINE FILTER PWB
CLOW
POWER & DEF. PWB
DEF OSC PWB
MICOM PWB
CHASSIS BASE
EHT PWB
FRONT CONTROL PWB
DIST PWB
AV TERMINAL BOARD
MAIN PWB
CLOW
12
AV SW PWB
DOLBY PWB
Fig.4
H
(×8)
Fig. 2
B
SIDE CONTROL JACK ASSEMBLY
CENTER SPEAKER
E
(×2)
POWER CORD
REAR COVER
SUB WOOFER UNIT
SUB WOOFER CORD
A
(×13)

Fig.1

2.4.11 REMOVING THE CRT

Note:

- Replacement of the CRT should be performed by 2 or more persons.
- After removing the REAR COVER, CHASSIS etc.,

(1) Putting the CRT change table on soft cloth, the CRT change table should also be covered with such soft cloth (shown in Fig. 5).

(2) While keeping the surface of CRT down, mount the TV set on the CRT change table balanced will as shown in Fig. 6.

(3) Remove 4 screws marked by arrows with a box type screwdriver as shown in Fig. 6.

Note:

Since the cabinet will drop when screws have been removed, be sure to support the cabinet with hands.

(4) After 4 screws have been removed, put the cabinet slowly on cloth (At this time, be carefully so as not to damage the front
surface of the cabinet) shown in Fig. 7.

Note:

- The CRT should be assembled according to the opposite sequence of its dismounting steps.
- The CRT change table should preferably be smaller that the CRT surface, and its height be about 35cm.

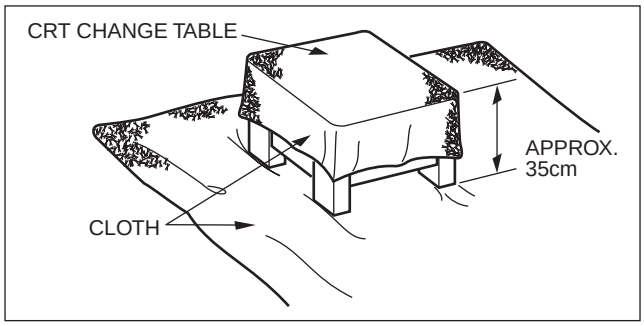


Fig.5

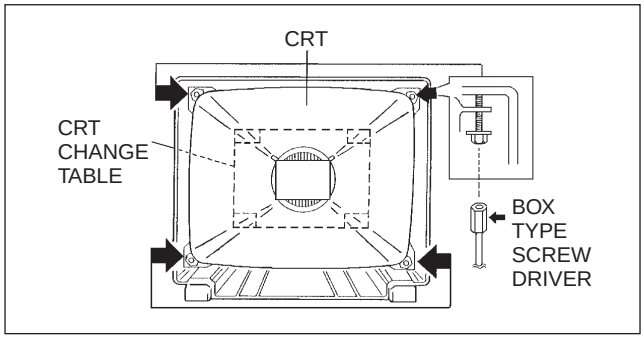


Fig.6

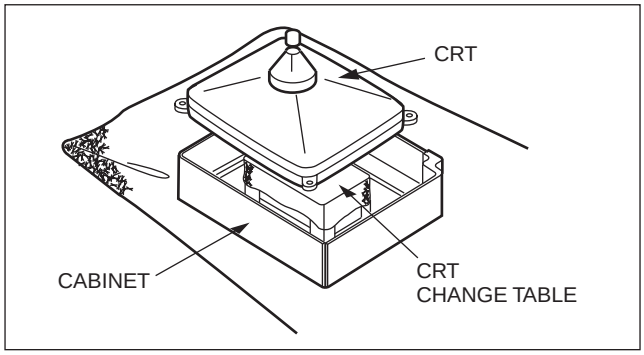
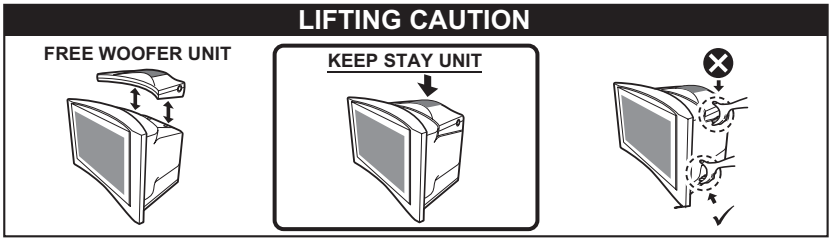


Fig.7

CAUTION

- The woofer unit is mounted on the TV. Always move the TV and woofer unit together when removing the TV from the box, or when moving the woofer unit.
- If the TV is tilted during movement the woofer unit may fall. Be careful to keep the TV level when moving it.
- Do not grip the woofer unit when moving the TV.
- Do not place objects on the woofer unit duct.



2.5 REPLACEMENT OF MEMORY ICs

2.5.1 MEMORY ICs

This TV use memory ICs. In the memory ICs, there are memorized data for correctly operating the video and deflection circuits. When replacing memory ICs, be sure to use ICs written with the initial values of data

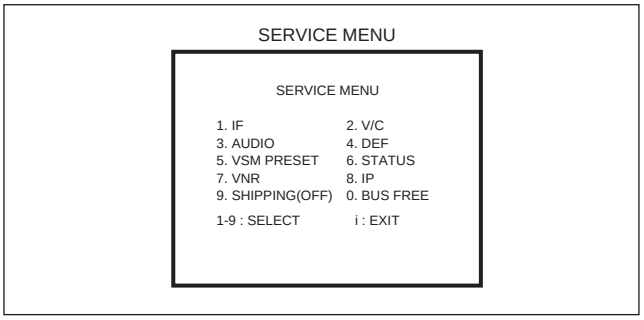


Fig.1

2.5.2 PROCEDURE FOR REPLACING MEMORY ICs

(1) Power off
Switch the power off and unplug the power cord from the wall outlet

(2) Replace ICs.
Be sure to use memory ICs written with the initial data values

(3) Power on
Plug the power cord into the wall outlet and switch the power on.

(4) Setting of receive channels
Set the receive channel.
For setting, refer to the OPERATING INSTRUCTIONS.

(5) Setting of SERVICE MENU
a) Press the INFORMATION key and the MUTE key of the REMOTE CONTROLUNIT simultaneously.
b) The SERVICE MENU screen of Fig. 1 will be displayed.
c) When a desired number is selected, the following menu will come up respectively.
Verify the setting items of the SERVICE MENU and reset where necessary. for setting, refer to the SERVICE ADJUSTMENTS.

(6) User settings
Check the user setting values of Table 1, and if setting value is different, set the correct value.
For setting, refer to the OPERATING INSTRUCTIONS.

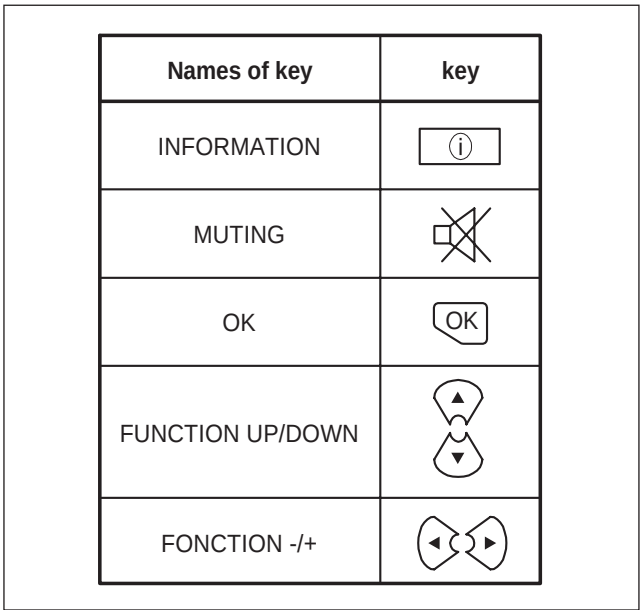


Fig.2

2.5.3 USER SETTING VALUES (SHIPPING VALUES)

Setting item	Setting value	Setting item	Setting value
MAIN POWER SW	OFF	**PICTURE SETTING**	
SHIPPING CHANNEL	PR1	PICTURE MODE	BRIGHT
PRESET CHANNEL	See ; OPERATING INSTRUCTIONS.	COLOUR TEMP	NORMAL
ZOOM MODE	PANORAMIC	TINT	NORMAL
SUB POWER	ON		
DISPLAY	INDICATED	**INSTALL**	
SOUND LEVEL	10	LANGUAGE	ENGLISH
		EDIT	PRESET CHANNEL ONLY OTHER : NON (SPACE)
PICTURE FEATURES			
DIGITAL VNR	AUTO	**SOUND**	
DIGIPURE PRO	AUTO	BASS	CENTRE
COLOUR SYSTEM	TV : Depends on PR/CH EXT : AUTO	TREBLE	CENTRE
		BALANCE	CENTRE
PICTURE TILT	CENTRE	DIGITAL SURROUND	SURROUD OFF
N/S CANCEL	CENTRE	3D PHONIC	
4: 3 AUTO ASPECT	PANORAMIC	TV SPEAKER	L/C/R
PIP POSITION	Right below	SUB WOOFER	OFF
		LEVEL	CENTRE
		VOLUME	MAX
		HEAD PHONE	
FEATURES		VOLUME	20
SLEEP TIMER	OFF	TV SPEAKER	OFF
		OUTPUT	MAIN
BLUE BACK	ON	DOLBY DIGITAL	
CHILD LOCK		TV SPEAKER	L/C/R
ID NO	0000	REAR SPEAKER	ON
ALL CH	OFF	SUB WOOFER	OFF
		TEST TONE	OFF
DECODER (EXT-2)	ALL CH: OFF	LEFT	MAX
DUBBING	EXT-1---->EXT-2	CENTRE	MAX
		RIGHT	MAX
EXT SETTING		SURROUND	MAX
ID	NON(SPACE)	DELAY TIME	0
S-IN	NON(SPACE)		

Table 1

2.5.4 SERVICE MENU SETTING ITEMS

Setting item	Setting value	Setting item	Setting value
1.IF	1.VCO 2.ATT ON/OFF	6.STATUS	**(Do not adjust)**
2. V/C	1.CUT OF R 12.TWN CONT 2.CUT OF G 13.COLOUR 3.CUT OF B 14.HUE 4.DRIVE R 15.BY GAIN 5.DRIVE G 16.TWN COL 6.DRIVE B 17.TWN TINT 7.TWN HI R 18.B OF MR 8.TWIN HI B 19.B OF MB 9.BRIGHT 20.B OF SR 10.CONT 21.B OF SB 11.TWN BRIG	7.VNR **(Do not adjust)**	1.MYLV 10.MCCOR 2.ONMVF 11.CLTL 3.MYCOR 12.YNGA 4.MYGA 13.COR_OF 5.YEGON 14.LPF_OF 6.YEGL 15.YCTL 7.YLTL 17.YNCON 8.MCLV 9.MCGA
3.AUDIO **(Do not adjust)**	1.ERR LIMIT 2.A2 ID THR 3.Q-PEAK SOUND SYSTEM 4.SOUND LEVEL SOUND SYSTEM	8.IP **(Do not adjust)**	PPA001 - PPA008 PPB001 - PPB036 PPC001 - PPC007 ADS001 - ADS034 IPA001 - IPA120 IPB001 - IPB088 IPC001 - IPC044 IPD001 - IPD058
4.DEF	1.FREE-RUN 7.EW-PIN 2.V-SHIFT 8.COR-UP 3.V-SIZE 9.COR-LO 4.H-CENT 10.V.S-COR 5.H-SIZE 11.V-LIN 6.TRAPEZ	9.SHIPPING	**(Do not select under the adjustment)**
5.VSM PRESET	1.CONT 2.BRIGHT 3.SHARP 4.COLOUR 5.HUE 6.WDR R 7.WDR G 8.WDR B		

Table 2

2.6 REPLACEMENT OF CHIP COMPONENT

2.6.1 CAUTIONS

(1) Avoid heating for more than 3 seconds.
(2) Do not rub the electrodes and the resist parts of the pattern.
(3) When removing a chip part, melt the solder adequately.
(4) Do not reuse a chip part after removing it.

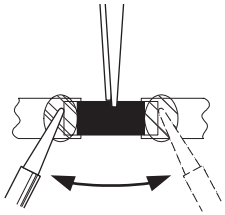
2.6.2 SOLDERING IRON

(1) Use a high insulation soldering iron with a thin pointed end of it.
(2) A 30w soldering iron is recommended for easily removing parts.

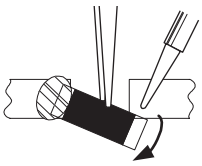
2.6.3 REPLACEMENT STEPS

1. How to remove Chip parts
[Resistors, capacitors, etc.]

(1) As shown in the figure, push the part with tweezers and alternately melt the solder at each end.



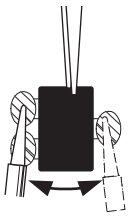
(2) Shift with the tweezers and remove the chip part.



[Transistors, diodes, variable resistors, etc.]

(1) Apply extra solder to each lead.

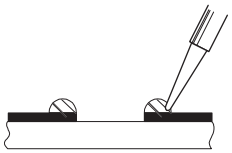
(2) As shown in the figure, push the part with tweezers and alternately melt the solder at each lead. Shift and remove the chip part.



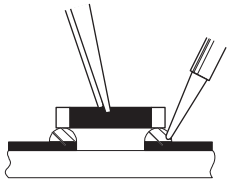
Note :
After removing the part, remove remaining solder from the pattern.

2. How to install Chip parts
[Resistors, capacitors, etc.]

(1) Apply solder to the pattern as indicated in the figure.

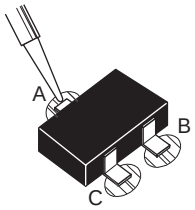


(2) Grasp the chip part with tweezers and place it on the solder. Then heat and melt the solder at both ends of the chip part.

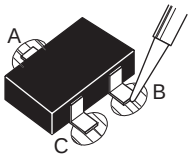


[Transistors, diodes, variable resistors, etc.]

(1) Apply solder to the pattern as indicated in the figure.
(2) Grasp the chip part with tweezers and place it on the solder.
(3) First solder lead **A** as indicated in the figure.



(4) Then solder leads **B** and **C**.



SECTION 3
SERVICE ADJUSTMENTS

3.1 ADJUSTMENT PREPARATION

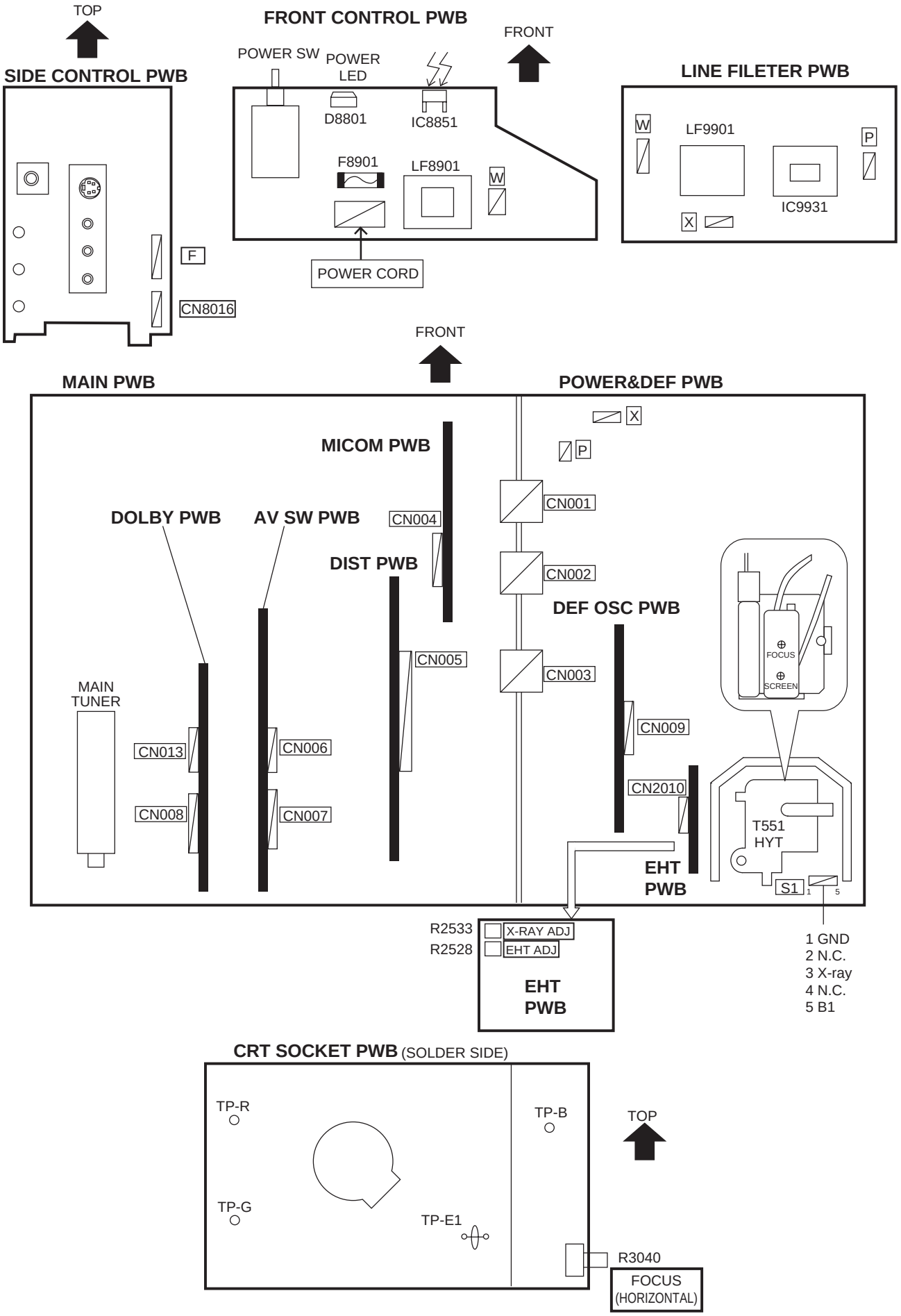
(1) There are 2 ways of adjusting this TV: One is with the REMOTE CONTROL UNIT and the other is the conventional method using adjustment parts and components.
(2) The setting (adjustment) using the REMOTE CONTROL UNIT is made on the basis of the initial setting values. The setting values which adjust the screen to the optimum condition can be different from the initial setting values.
(3) Make sure that connection is correctly made AC to AC power source.
(4) Turn on the power of the TV and measuring instrument for warming up for at least 30 minutes before starting adjustment.
(5) If the receive or input signal is not specified, use the most appropriate signal for adjustment.
(6) Never touch parts (such as variable resistors, transformers and condensers) not shown in the adjustment items of this service adjustment.
(7) Preparation for adjustment (presetting):
Unless otherwise specified in the adjustment items, preset thefollowing functions with the REMOTE CONTROL UNIT:
Setting position

Setting item	Setting value
PICTURE MODE	NORMAL
DIGITAL VNR	AUTO
DIGIPURE PRO	AUTO
SLEEP TIMER	OFF
TONE BALANCE	CENTRE
DIGITAL SURROUND	OFF
BLUE BACK	OFF
ZOOM MODE	FULL

3.2 MEASURING INSTRUMENT AND FIXTURES

- DC voltmeter (or Digital voltmeter)
- Oscilloscope
- Signal generator (Pattern generator) [PAL/SECAM/NTSC]
- Remote control unit

3.3 ADJUSTMENT LOCATIONS



3.4 BASIC OPERATION IN SERVICE MENU

3.4.1 TOOL OF SERVICE MENU OPERATION

Operate the SERVICE MENU with the remote control unit.

3.4.2 SERVICE MENU ITEMS

With the SERVICE MENU,various settings (adjustments)can be made,and they are broadly classified in the following items of settings:

1.IF	This mode adjusts the setting values of the IF circuit.
2.V/C	This mode adjusts the setting values of the VIDEO / CHROMA circuit.
3.AUDIO	This mode adjusts the setting values of the SOUND circuit. It is not requirement to adjustment. (Setting only)
4.DEF	This mode adjusts the setting values of the DEFLECTION circuit for each aspect mode given
5.VSM PRESET	This mode adjusts the initial setting values of Bright, Standard & Soft. (VSM: Video Status Memory)
6.STATUS	It is no requirement to adjustment.
7.VNR	This mode adjusts the setting values of the DIGITAL circuit. It is not requirement to adjustment. (Setting only)
8.IP	This mode adjusts the setting values of the IP circuit. It is not requirement to adjustment. (Setting only)
9.SHIPPING(OFF)	Don't select under the adjustment.as this menu is set in "ON" after the inspection. **Note:** When users press the MAIN POWER button, the JVC logo appears. If they press any keys, the LANGUAGE menu appears.
10.BUS FREE	It is not requirement to adjustment.

3.4.3 BASIC OPERATION IN SERVICE MENU

(1) How to enter SERVICE MENU

Press the [INFORMATION] key and the [MUTE] key of the REMOTE CONTROL UNIT simultaneously, and the SERVICE MENU screen of Fig. 1 will be displayed.

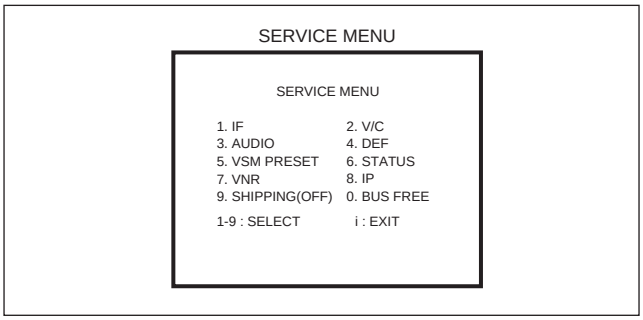


Fig.1

(2) Selection of SUB MENU SCREEN

Press one of keys [1~5] of the REMOTE CONTROL UNIT and select the SUB MENU SCREEN (See Fig. 3), form the SERVICE MENU.

SERVICE MENU ---> SUB MENU

- 1. IF
- 2. V/C
- 3. AUDIO **(Do not adjust)**
- 4. DEF.
- 5. VSM PRESET
- 6. STATUS **(Do not adjust)**
- 7. VNR **(Do not adjust)**
- 8. IP **(Do not adjust)**
- 9. SHIPPING (OFF) **(Do not adjust)**
- 0. BUS FREE **(Do not adjust)**

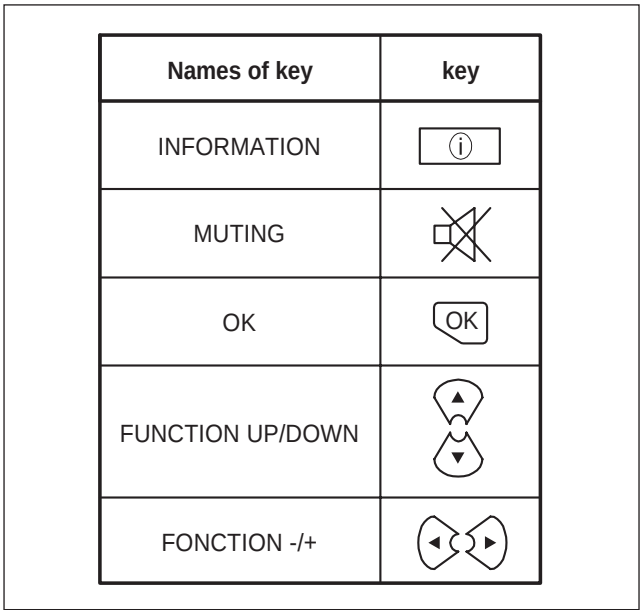


Fig.2

(3) Method of Setting

1) Method of Setting 1.IF

[1.VCO] : It must not adjust without signal.

Key	Function
(a) [1]	Select 1.1F
(b) [1]	Select 1.VCO (CW) Make sure that the arrow position between the ABOVE REF and BELOW REF.
(c) [INFORMATION]	Return to the SERVICE MENU screen.

2) Method of setting 2.V/C, 3.AUDIO, 4.DEF and 5.VSM PRESET.

Key	Function
(a) [2~5]	Select one from 2.V/C, 3.AUDIO, 4.DEF and 5.VSM PRESET.
(b) FUNCTION UP / DOWN (▲/▼)	Select setting items.
(c) FUNCTION -/+ (◀/▶)	Set (adjust) the setting values of the setting items.
(d) OK	Memorize the setting value. (Before storing the setting values in memory, do not press the CH, TV, POWER ON / OFF key if you do, the values will not be stored in memory.)
(e) INFORMATION	Return to the SERVICE MENU screen.

3) Do not setting 6.STATUS, 7.VNR, 8.IP, 9.SHIPPING (OFF) and 0.BUS FREE.

(4) Release of SERVICE MENU

After completing the setting, return to the SERVICE MENU, then again press the [INFORMATION] key.

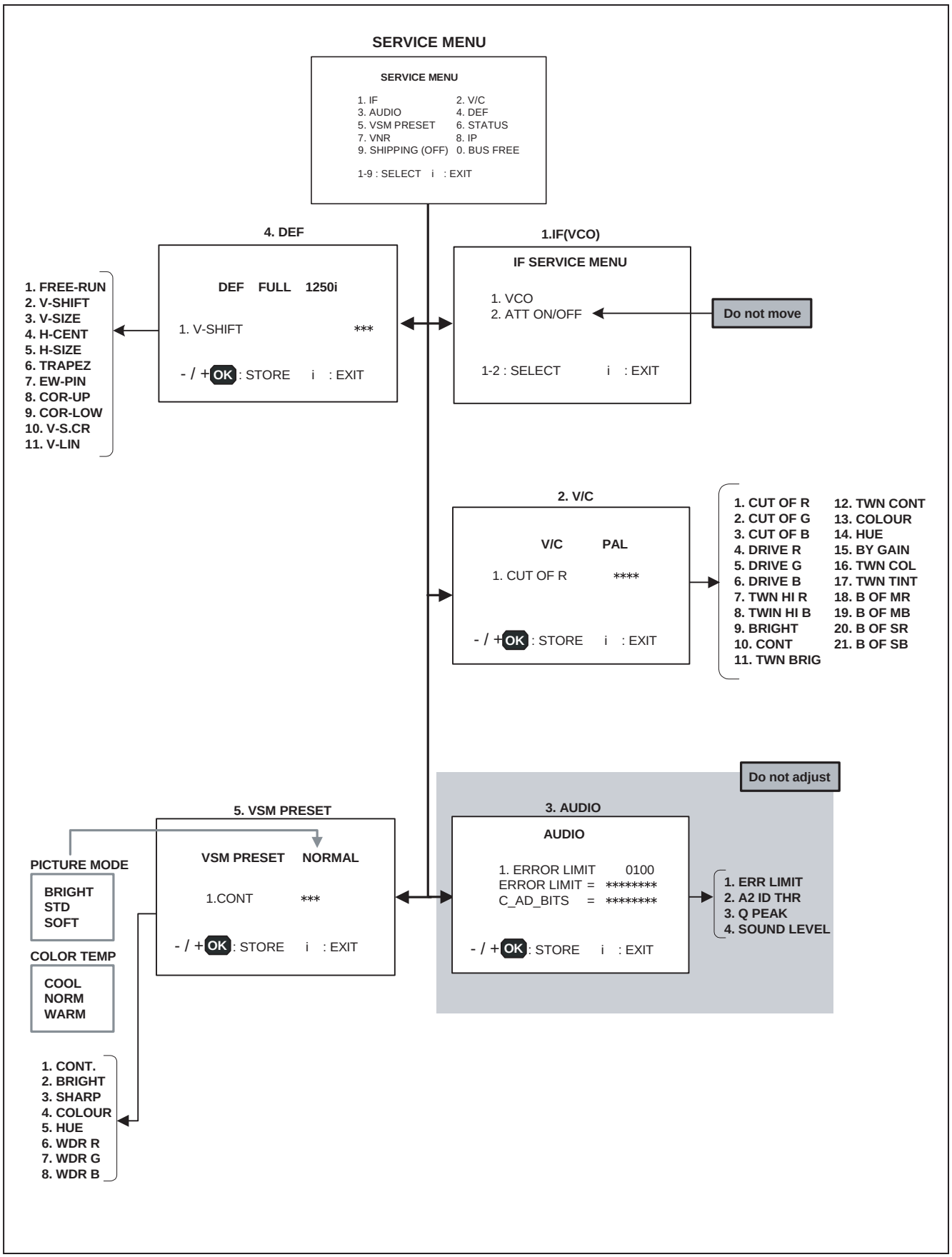
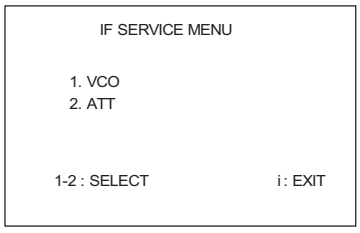


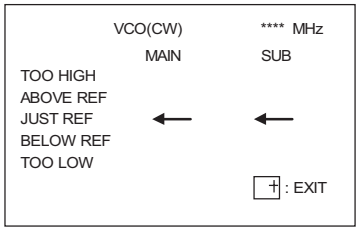
Fig.3 SERVICE MENU SCREEN

3.5 ADJUSTMENTS

3.5.1 CHECK ITEM

Item	Mesuring instrument	Test point	Adjustment part	Description
B1 POWER SUPPLY Check	Signal generator DC voltmeter Remote control unit	CN0S1 connector pin-1 (GND) CN0S1 connector pin-5 (B1) [POWER & DEF PWB]	2. V/C --> 1. CUT OF R	(1) Receive any broadcast. (2) Select 2. V/C from the SERVICE MENU. (3) Select 1. CUT OF R. (4) Press the [YELLOW] key to display a signal horizontal line. (5) Connect the voltmeter between 5pin (B1), and 1pin (GND) of the connector CN0S1. (6) Confirm that the voltage is DC185V ± 2V.
VCO Check	Remote control unit		1. IF --> 1. VCO	• Under normal conditions, no adjustment is required. (1) Receive any broadcast. (2) Select 1.IF from the SERVICE MENU. (3) Select 1.VCO. (4) Check the arrow position of MAIN between the “ABOVE REF.” and “BELOW REF.” . (5) Check the arrow position of SUB between the “ABOVE REF.” and “BELOW REF.”.





The arrow position mean AFC voltage level.

3.5.2 HIGH VOLTAGE

Item	Mesuring instrument	Test point	Adjustment part	Description
HIGH VOLTAGE	Signal generator HV voltmeter Remote control unit	CRT anode Chassis GND	2. V/C -->1. CUT OF R EHT VR (R2528) [EHT PWB]	(1) Receive any broadcast. (2) Select 2. V/C from the SERVICE MENU. (3) Select 1. CUT OF R. (4) Press the [YELLOW] key to display a signal horizontal line. (5) Connect a HV voltmeter between CRT ANODE and chassis GND (6) Adjust EHT VR so that the voltage is 31.0kV ± 0.2kV.

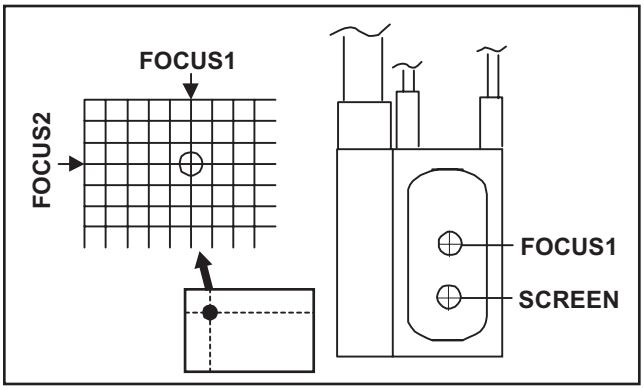
3.5.3 X-RAY PROTECTOR

Item	Mesuring instrument	Test point	Adjustment part	Description
X-RAY PROTECTION	Signal generator DC voltmeter	CN0S1 connector pin-1 (GND) CN0S1 connector pin-3 (X-RAY) [POWER & DEF PWB]	X-RAY VR (R2533) [EHT PWB]	(1) Receive any broadcast. (2) Connect a DC voltmeter between pin1 and pin3 of the connector CN0S1. (3) Adjust X-RAY VR so that the voltage value is 4.9V ± 0.2V.

3.5.4 HORIZONTAL FREQUENCY

Item	Mesuring instrument	Test point	Adjustment part	Description
HORIZONTAL FREQUENCY	Signal generator Remote control unit		4.DEF -->1. FREE-RUN	(1) Receive the cross-hatch signal. (2) Set the FULL mode. (3) Select 4. DEF from the SERVICE MENU. (4) Select 1.FREE-RUN. (5) Adjust so that the movement of the picture slows most while watching the picture. (6) Press the [OK] key and memorized the set data.

3.5.5 FOCUS

Item	Mesuring instrument	Test point	Adjustment part	Description
FOCUS	Signal generator Remote control unit		FOCUS 1 VR [HVT] FOCUS 2 VR (R3040) [CRT SOCKET PWB]	(1) Receive the cross-hatch signal (2) Set the FULL mode. (3) By turning the FOCUS 1 VR, adjust the picture so that the " ○ " part horizontal line may become thinnest. (4) By turning the FOCUS 2 VR, adjust the picture so that the most outside vertical line may become thinnest. (5) Carry out adjustment by repeating the steps 3 and 4 above. (6) Make sure that the screen is darkened, the lines remain in good focus.
				

3.5.6 VSM PRESET ADJUST SETTING

Item	Mesuring instrument	Test point	Adjustment part	Description
VSM PRESET setting	Remote control unit		5. VSM PRESET --> 1. CONT 2. BRIGHT 3. SHARP 4. COLOUR 5. HUE 6. WDR R 7. WDR G 8. WDR B	(1) Select 5. VSM PRESET from the SERVICE MENU. (2) Select the PICTURE MODE to BRIGHT. (3) Adjust to bring the set values of 1. CONT to 5. HUE to the values shown in the table. (4) Press the [OK] key and memorize the set value. (5) Respectively select PICTURE MODE for SOFT and STD, and make similar adjustment as step 3 and 4 in above. (6) Select the COLOUR TEMP to COOL. (7) Adjust to bring the set values of 6. WDR R to 8. WDR B to the values shown in the table. (8) Press the [OK] key and memorize the set value. (9) Respectively select COLOUR TEMP for WARM and NORMAL, and make similar adjustment as step 7 and 8 in above.

SETTING VALUES OF VSM PRESET

	PICTURE MODE			COLOUR TEMP		
	BRIGHT	**STD**	**SOFT**	**COOL**	**NORMAL**	**WARM**
1.CONT	+12	+5	-8	-	-	-
2.BRIGHT	-2	0	0	-	-	-
3.SHARP	0	0	-2	-	-	-
4.COLOUR	0	0	-2	-	-	-
5.HUE	0	0	0	-	-	-
6.WDR R	-	-	-	-4	0	+8
7.WDR G	-	-	-	0	0	0
8.WDR B	-	-	-	+8	0	-1

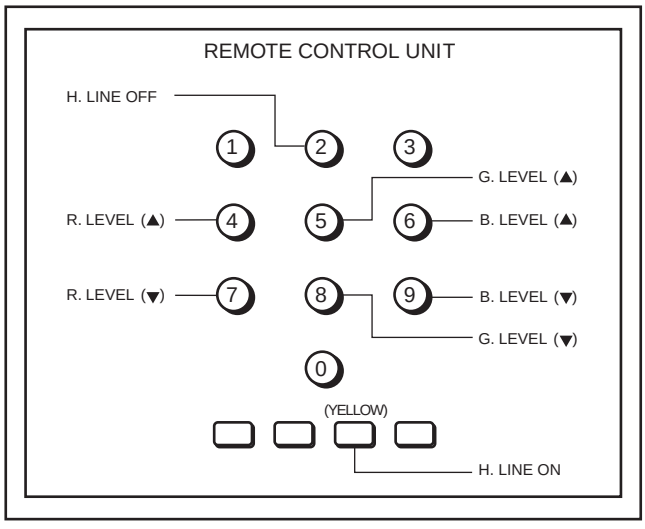
3.5.7 VIDEO / CHROMA CIRCUIT ADJUSTMENT

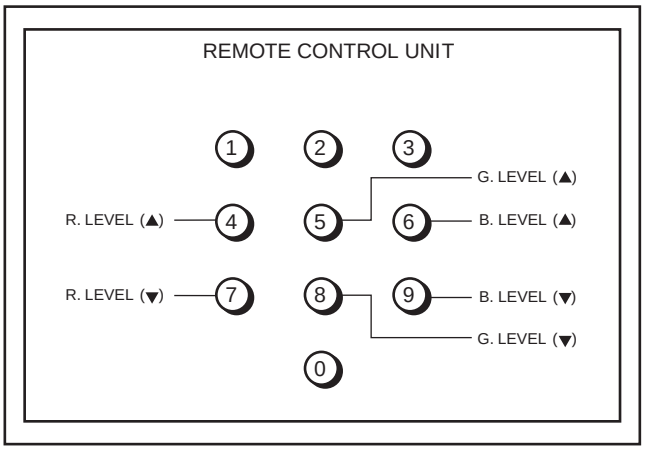
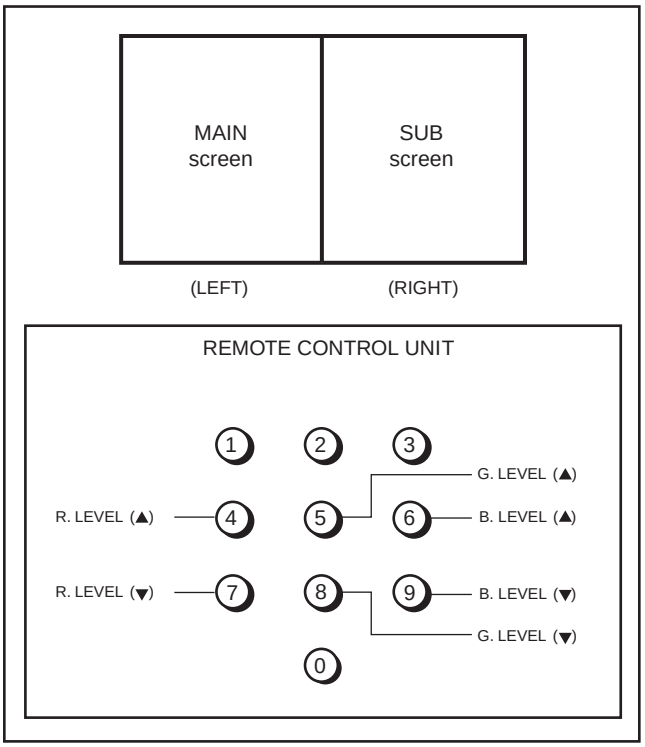
The setting (adjustment) using the remote control unit is made on the basis of the initial setting values.
The setting values which adjust the screen to the optimum condition can be different from the initial setting values.

Setting item (Adjustment item)	TV		EXT-1 / EXT-2 / EXT-3 / EXT-5			EXT-4			
	PAL	SECAM	PAL	SECAM	NTSC	625i	525i	625p	525p
1.CUT OF R	88	88	88	88	88	[0]	[0]	[0]	[0]
2.CUT OF G	88	88	88	88	88	[0]	[0]	[0]	[0]
3.CUT OF B	88	88	88	88	88	[0]	[0]	[0]	[0]
4.DRIVE R	64	64	64	64	64	[0]	[0]	[0]	[0]
5.DRIVE G	64	64	64	64	64	[0]	[0]	[0]	[0]
6.DRIVE B	64	64	64	64	64	[0]	[0]	[0]	[0]
7.TWN HI R	67	67	67	67	67	[-1]	[-1]	[-4]	[-4]
8.TWN HI B	67	67	67	67	67	[-1]	[-1]	[-1]	[-1]
9.BRIGHT	141	141	141	141	141	[-5]	[-5]	[-1]	[-1]
10.CONT	70	70	70	70	70	[0]	[0]	[0]	[0]
11.TWN BRIG	76	76	76	76	76	[0]	[0]	[0]	[0]
12.TWN CONT	7	7	7	7	7	[0]	[0]	[0]	[0]
13.COLOUR	60	60	[0]	[0]	60	[0]	[0]	[0]	[0]
14.HUE	[32]	[32]	32	32	32	[68]	[68]	[0]	[0]
15.BY GAIN	[43]	[43]	[0]	[0]	[43]	[0]	[0]	[0]	[0]
16.TWN COL	6	6	[0]	[0]	6	-	-	-	-
17.TWN TNT	[32]	[32]	32	32	32	-	-	-	-
18.B OF MR	[08]	[08]	[08]	[08]	[08]	[08]	[08]	[08]	[08]
19.B OF MB	[08]	[08]	[08]	[08]	[08]	[08]	[08]	[08]	[08]
20.B OF MR	[08]	[08]	[08]	[08]	[08]	[08]	[08]	[08]	[08]
21.B OF MB	[08]	[08]	[08]	[08]	[08]	[08]	[08]	[08]	[08]

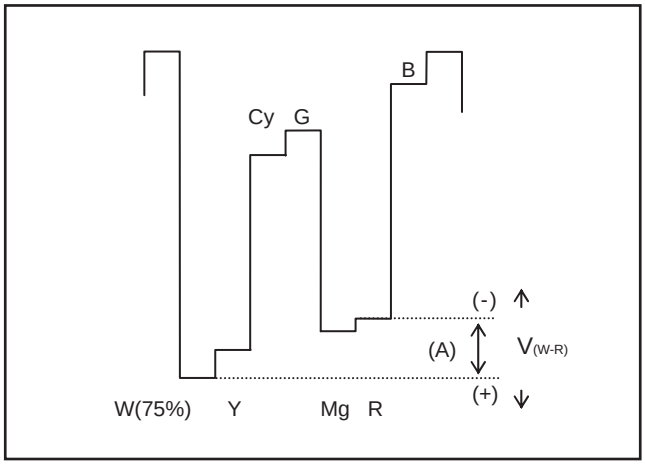
Mark [ ] : Fix (Do not move)

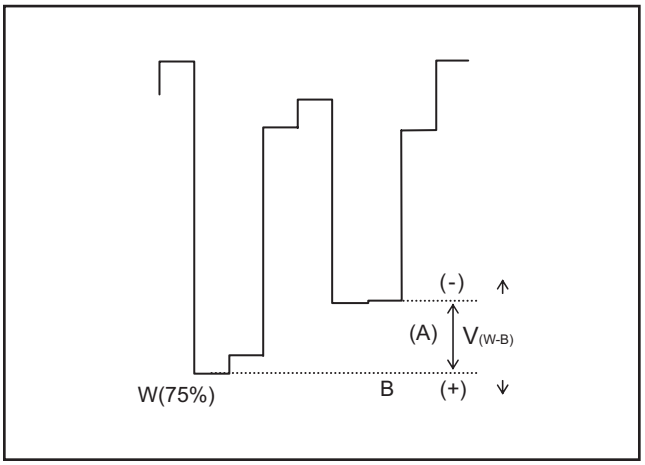
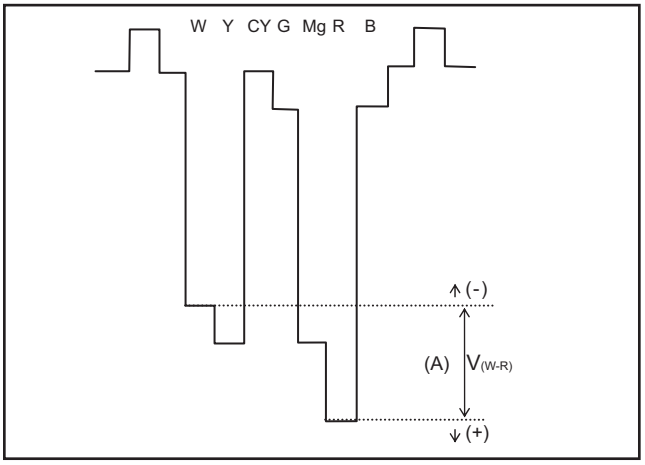
Item	Mesuring instrument	Test point	Adjustment part	Description
WHITE BALANCE (Low light)	Signal generator Remote control unit		2. V/C -->1. CUT OF R 2. CUT OF G 3. CUT OF B SCREEN VR [HVT]	(1) Receive the black and white pattern signal (colour off). (2) Set the FULL mode. (3) Select 2. V/C from the SERVICE MENU. (4) Select 1. CUT OF R and set each value to initial setting value. (5) Press the [YELLOW] key to display a signal horizontal line. (6) Turn the SCREEN VR fully counterclockwise, then slowly turn it clockwise to where a red, blue or green colour is faintly visible. (7) Adjust the other 2 colours to where the single horizontal line appears white. (8) Turn the SCREEN VR to where the single horizontal line glows faintly. (9) Press the [2] key to release the holizontal line mode. (10) Press the [OK] key and memorized the set value.



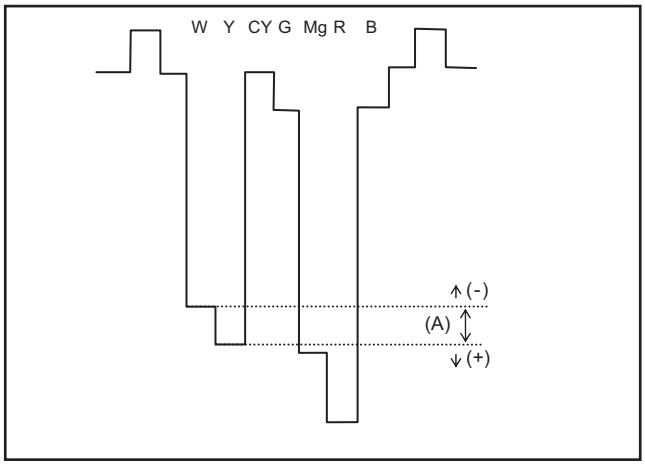
Item	Mesuring instrument	Test point	Adjustment part	Description
WHITE BALANCE (High light)	Signal generator Remote control unit		2. V/C --> 4. DRIVE R 5. DRIVE G 6. DRIVE B	• Proceed to the following adjustment after having completed the adjustment of LOW LIGHT WHITE BALANCE. (1) Receive the black and white pattern signal (colour off). (2) Set the FULL mode. (3) Select 2. V/C from the SERVICE MENU. (4) Select 4. DRIVE R, and 6. DRIVE B and set each value to initial setting value. (5) Produce a white screen. (6) Press the [OK] key and memorize the set value.
				
SUB SCREEN WHITE BALANCE (High light)	Signal generator Remote control unit		2. V/C --> 7. TWIN HI R	(1) Receive the black and white pattern signal (colour off). (2) Select the Twin screen mode by pressing the [PIP] key. (3) Select 2. V/C from the SERVICE MENU. (4) Select 7.TWIN HI R. (5) Adjust so that the white level on the right screen in the same manner as for left screen. (6) Press the [OK] key and memorize the set value.
				

Item	Mesuring instrument	Test point	Adjustment part	Description
SUB BRIGHTNESS	Signal generator Remote control unit		2. V/C --> 9. BRIGHT	(1) Receive the black and white pattern signal (colour off). (2) Select 2. V/C from the SERVICE MENU. (3) Select 9. BRIGHT. (4) Set the inital setting value. (5) If the brightness is not the best with the initial setting value, make fine adjustment until you get the best brightness. (6) Press the [OK] key and memorize the set value.
SUB CONTRAST	Signal generator Remote control unit		2. V/C--> 10. CONT	(1) Receive the black and white pattern signal (colour off). (2) Select 2. V/C from the SERVICE MENU. (3) Select 10. CONT. (4) Set the inital setting value. (5) If the contrast is not the best with the initial setting value, make fine adjustment until you get the best contrast. (6) Press the [OK] key and memorize the set value.
SUB SCREEN SUB BRIGHTNESS & SUB CONTRAST	Signal generator Remote control unit		2. V/C --> 11. TW BRIG 12. TW CONT	(1) Receive the black and white pattern signal (colour off). (2) Select the Twin screen mode by pressing the [PIP] key. (3) Select 2. V/C from the SERVICE MENU. (4) Select 11.TW BRIG. (5) Set the inital setting value. (6) Adjust 11.TW BRIG so that the right screen becomes the same as for the left screen. (7) Adjust 12. TW CONT so that right screen becomes the same as for the left screen. (8) If brightness was changed, adjust it one more time. (9) Press the [OK] key and memorize the set value.
PAL SUB COLOUR	Signal generator Oscilloscope Remote control unit	TP-R TP-E [CRT SOCKET PWB]	2. V/C --> 13. COLOUR	**[Method of adjustment without measuring instrument]** (1) Receive PAL broadcast. (2) Select 2.V/C from the SERVICE MENU. (3) Select 13.COLOUR. (4) Set the initial setting value for PAL COLOUR. (5) If the colour is not the best with the initial set value, make fine adjustment until you get the best colour. (6) Press the [OK] key and memorize the set value. **[Method of adjustment using measuring instrument]** (1) Receive a PAL full field colour bar signal (75% white). (2) Select 2.V/C from the SERVICE MENU. (3) Select 13.COLOUR. (4) Set the initial setting value for PAL COLOUR. (5) Connect the oscilloscope between TP-R and TP-E. (6) Adjust PAL COLOUR and bring the value of (A) in the illustration to 5V (voltage difference between white (W) and red (R)). (7) Press the [OK] key and memorize the set value.

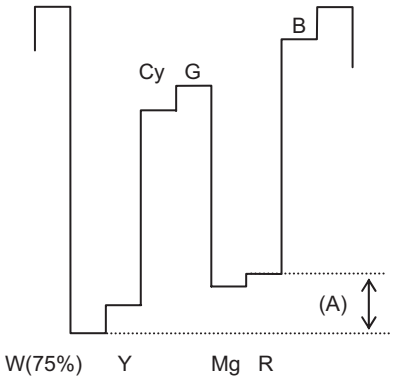


Item	Mesuring instrument	Test point	Adjustment part	Description
SECAM SUB COLOUR	Signal generator Oscilloscope Remote control unit	TP-R TP-E [CRT SOCKET PWB]	2. V/C --> 13. COLOUR	**[Method of adjustment without measuring instrument]** (1) Receive SECAM broadcast. (2) Select 2.V/C from the SERVICE MENU. (3) Select 13.COLOUR. (4) Set the initial setting value for SECAM COLOUR. (5) If the colour is not the best with the initial set value, make fine adjustment until you get the best colour. (6) Press the [OK] key and memorize the set value. **[Method of adjustment using measuring instrument]** (1) Receive a SECAM colour bar signal. (2) Select 2.V/C from the SERVICE MENU. (3) Select 13.COLOUR. (4) Set the initial setting value for SECAM COLOUR. (5) Connect the oscilloscope between TP-R and TP-E. (6) Adjust SECAM COLOUR and bring the value of (A) in the illustration to 4V (voltage difference between white (W) and blue (B)). (7) Press the [OK] key and memorize the set value.
				
NTSC SUB COLOUR	Signal generator Oscilloscope Remote control unit	TP-R TP-E [CRT SOCKET PWB]	2. V/C --> 13. COLOUR	**[Method of adjustment without measuring instrument]** (1) Input a NTSC 3.58MHz COMPOSITE VIDEO signal from the EXT terminal. (2) Select 2.V/C from the SERVICE MENU. (3) Select 13.COLOUR. (4) Set the initial setting value for NTSC COLOUR. (5) If the colour is not the best with the initial set value, make fine adjustment until you get the best colour. (6) Press the [OK] key and memorize the set value. **[Method of adjustment using measuring instrument]** (1) Input a NTSC 3.58MHz COMPOSITE VIDEO signal (full field colour bar with 75% white) from the EXT terminal. (2) Select 2.V/C from the SERVICE MENU. (3) Select 13.COLOUR. (4) Set the initial setting value for NTSC COLOUR. (5) Connect the oscilloscope between TP-R and TP-E. (6) Adjust NTSC COLOUR and bring the value of (A) in the illustration to 3V (voltage difference between white (W) and red (R)). (7) Press the [OK] key and memorize the set value. **-NTSC 4.43MHz COLOUR-** When NTSC 3.58MHz COLOUR, set, NTSC 4.43MHz COLOUR will automatically set.
				

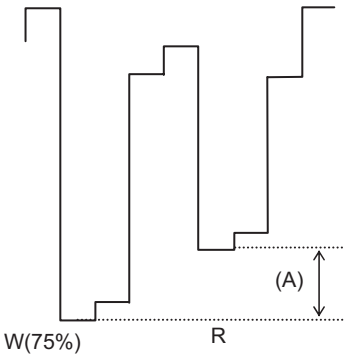
Item	Mesuring instrument	Test point	Adjustment part	Description
NTSC 3.58MHz SUB TINT	Signal generator Oscilloscope Remote control unit	TP-R TP-E [CRT SOCKET PWB]	2. V/C --> 14. HUE	**[Method of adjustment without measuring instrument]** (1) Input a NTSC 3.58MHz COMPOSITE VIDEO signal (full field colour bar with 75% white) from the EXT terminal. (2) Select 2. V/C from the SERVICE MENU. (3) Select 14. HUE. (4) Set the initial setting value for NTSC HUE. (5) If the colour is not the bwst with the initial set value, make fine adjustment until you get the best colour. (6) Press the [OK] key and memorize the set value. **[Method of adjustment using measuring instrument]** (1) Input a NTSC 3.58MHz COMPOSITE VIDEO signal (full field colour bar with 75% white) from the EXT terminal. (2) Select 2.V/C from the SERVICE MENU. (3) Select 14.HUE. (4) Connect the oscilloscope between TP-R and TP-E. (5) Adjust NTSC COLOUR and bring the value of (A) in the illustration to -1V (voltage difference between white (W) and yellow (Y)). (6) Press the [OK] key and memorize the set value. **-NTSC 4.43MHz TINT-** When NTSC 3.58MHz TINT, set, NTSC 4.43MHz TINT will automatically set.



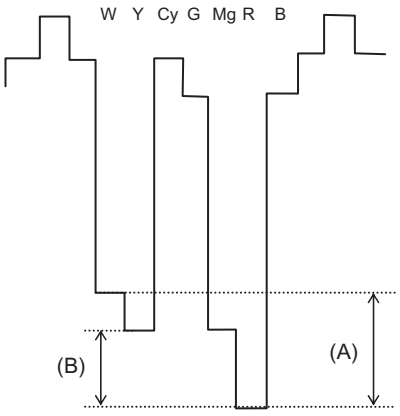
Item	Mesuring instrument	Test point	Adjustment part	Description
SUB SCREEN SUB COLOUR & SUB TINT	Signal generator Oscilloscope Remote control unit	TP-R TP-E [CRT SOCKET PWB]	2. V/C -->16.TWN COL 17.TWN TNT	(1) Receive PAL colour bar signal to right and left screen. (2) Select the Twin screen mode by pressing the [PIP] key. (3) Select 2. V/C from the SERVICE MENU. (4) Select 16. TWIN COL. (5) Connect the osilloscope to TP-R. (6) Adjust so that the colour difference (A) on the right screen in the same manner as for left screen. (7) Press the [OK] key and memorize the set value. (8) Receive SECAM colour bar signal to right and left screen. (9) Adjust so that the colour difference (A) on the right screen in the same manner as for left screen. (10) Press the [OK] key and memorize the set value. (11) Input a NTSC 3.58MHz COMPOSITE VIDEO signal to right and left screen. (12) Adjust so that the colour difference (A) on the right screen in the same manner as for left screen. (13) Select 17. TWIN TNT. (14) Adjust so that the colour difference (B) on the right screen in the same manner as for left screen. (15) Press the [OK] key and memorize the set value.



<PAL COLOUR>



<SECAM COLOUR>



<NTSC COLOUR>

3.5.8 DEFLECTION CIRCUIT ADJUSTMENTS

The setting (adjustment) using the remote control unit is made on the basis of the initial setting values.
The setting values which adjust the screen to the optimum condition can be different from the initial setting values.

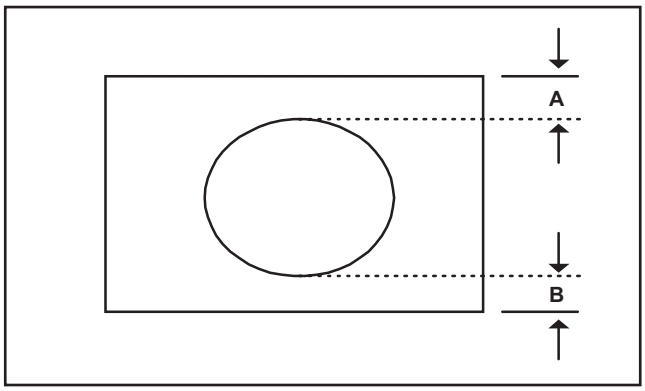
When the FULL mode has been established, the setting of other aspect modes will be done automatically.
There are 2 modes of the adjustment (1) 1250i mode and (2) 1500i depending upon the kind of signal (vertical frequency 50Hz/60Hz). FIrst adjust the 1250i mode, then adjust the 1500i mode.

Note:
Proceed to the following adjustment after having completed the VIDEO / CHROMA adjustments. (BRIGHT and CONTRAST)

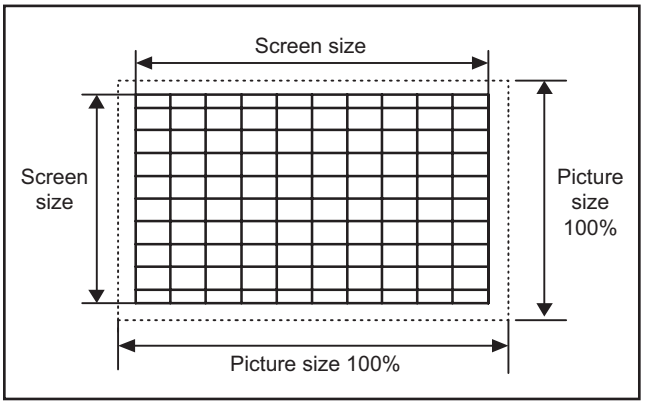
	4. DEF		
ASPECT	**FULL**		
SCAN MODE	**1250i (fv=50Hz)**	**1500i (fv=60Hz)**	**900i (fv=50Hz)**
1.FREE-RUN	70	0	0*
2.V-SHIFT	21	-2	1*
3.V-SIZE	59	0	6*
4.H-CENT	50	3	0*
5.H-SIZE	26	0	1*
6.TRAPEZ	30	0	0*
7.EW-PIN	28	0	0*
8.COR-UP	6	0	0*
9.COR-ROW	6	0	0*
10.V-S.CR	28	0	0*
11.V-LIN	40	0	0*

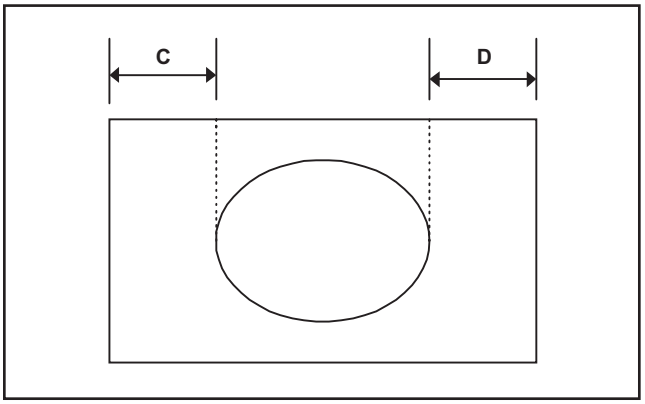
Mark * : Fix (Do not move)

Item	Mesuring instrument	Test point	Adjustment part	Description
V.POSITION	Signal generator Remote control unit		4.DEF --> 2.V-SHIFT	(1) Receive a circle pattern signal. (2) Set the FULL mode. (3) Select 4. DEF from the SERVICE MENU. (4) Select 2.V-SHIFT. (5) Adjust to make “A”=“B”. (6) Press the [OK] key and memorize the set value.

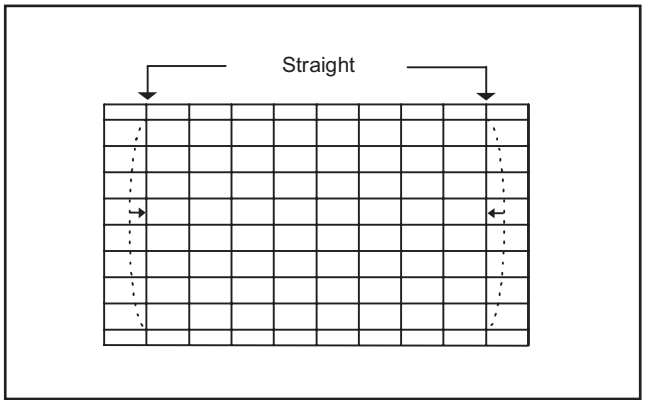
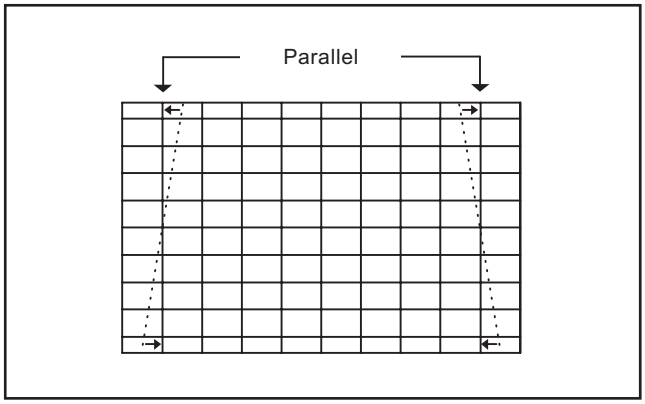


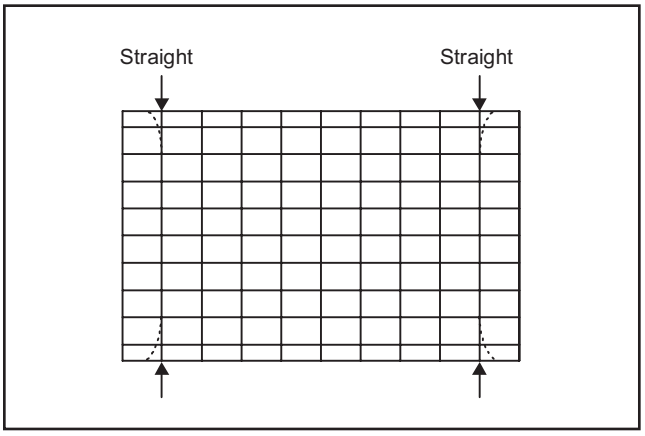
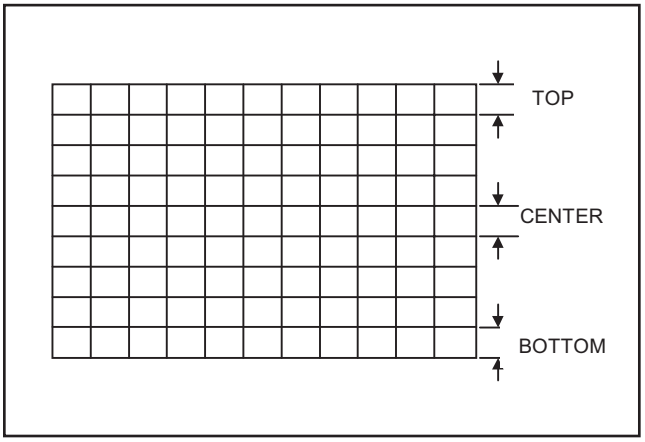
<table>
<tr><th>Item</th><th>Mesuring instrument</th><th>Test point</th><th>Adjustment part</th><th>Description</th></tr>
<tr><td>V.SIZE</td><td>Signal generator

Remote control unit</td><td></td><td>4.DEF -->
3.V-SIZE</td><td rowspan="2">(1) Receive a cross-hatch signal.
(2) Select 4.DEF from the SERVICE MENU.
(3) Select 3.V-SIZE.
(4) Adjust to make the vertical screen size 92% of the picture size.
(5) Press the [OK] key and memorize the set value.</td></tr>
<tr><td colspan="4"> 
</td></tr>
<tr><td>H.POSITION</td><td>Signal generator

Remote control unit</td><td></td><td>4.DEF -->
4.H-CENT</td><td rowspan="2">(1) Receive a circle pattern signal.
(2) Select 4.DEF from the SERVICE MENU.
(3) Select 4.H-CENT.
(4) Adjust to make “C”=“D”.
(5) Press the [OK] key and memorize the set value.</td></tr>
<tr><td colspan="4"> 
</td></tr>
<tr><td>H.WIDTH</td><td>Signal generator

Remote control unit</td><td></td><td>4.DEF -->
5.H-SIZE</td><td>(1) Receive a circle pattern signal.
(2) Select 4.DEF from the SERVICE MENU.
(3) Select 5.H-SIZE.
(4) Adjust to make the horizontal screen size 92% of the picture size.
(5) Press the [OK] key and memorize the set value.</td></tr>
</table>

Item	Mesuring instrument	Test point	Adjustment part	Description
SIDEPIN	Signal generator Remote control unit		4.DEF --> 7.EW-PIN	(1) Receive a cross-hatch signal. (2) Select 4.DEF from the SERVICE MENU. (3) Select 7. EW-PI.N (4) Adjust so that the first vertical lines at the left and right edges on the screen are straight. (5) Press the [OK] key and memorize the set value.
				
TRAPEZIUM	Signal generator Remote control unit		4.DEF --> 6.TRAPEZ	(1) Receive a cross-hatch signal. (2) Select 4.DEF from the SERVICE MENU. (3) Select 6. TRAPEZ. (4) Set the initial setting value. (5) Adjust so that the vertical lines at the left and right edges on the screen are in parallel. (6) Press the [OK] key and memorize the set value.
				

Item	Mesuring instrument	Test point	Adjustment part	Description
CORNER PIN	Signal generator Remote control unit		4. DEF --> 8. COR-UP 9. COR-LOW	(1) Receive a cross-hatch signal. (2) Select 4. DEF from the SERVICE MENU. (3) Select 8.COR-UP. (4) Set the initial setting value. (5) Adjust to bring the straight line at the upper corner. (6) Select 9.COR-LOW. (7) Set the initial setting value. (8) Adjust to bring the straight line at the lower corner. (9) Press the [OK] key and memorize the set value.
				
V.S-SHAPE CORRECTION & V.LINEARITY	Signal generator Remote control unit		4. DEF --> 10. V-S.CR 11. V-LIN	• When the vertical linearity has been deteriorated remarkably, perform the following steps. • Do not adjust PANORAMIC & SUBTITLE mode. (1) Receive a cross-hatch signal. (2) Select 4. DEF from the SERVICE MENU. (3) Select 11.V-LIN. (4) Set the initial setting value. (5) Select 10.V-S.CR. (6) Set the initial setting value. (7) Adjust 11.V-LIN and 10.V-S.CR so that the spaces of each line on TOP, CENTER and BOTTOM become uniform.
				

3.5.9 AUDIO ADJUSTMENT

Do not adjust 3. AUDIO adjustment of the SERVICE MENU as it requires no adjustment.
If values had changed for the some reason, set the initial values in the following table.

3. AUDIO (Do not adjust)

Setting item	Variable range	Initial setting value (fixed)
1. ERROR LIMIT	0000H ~ 0FF0H	0100
2. A2 ID THR	0000H ~ 00FF	19H
3. Q-PEAK (Do not adjust)	---	---
4. SOUND SYSTEM	F00FH ~ FFFFH	FFFFH

HV-32D25EUW / HV-32D25EJW STANDARD CIRCUIT DIAGRAM

■ NOTE ON USING CIRCUIT DIAGRAMS

1.SAFETY

The components identified by the ⚠ symbol and shading are critical for safety. For continued safety replace safety critical components only with manufactures recommended parts.

2.SPECIFIED VOLTAGE AND WAVEFORM VALUES

The voltage and waveform values have been measured under the following conditions.

(1)Input signal	: Colour bar signal
(2)Setting positions of each knob/button and variable resistor	: Original setting position when shipped
(3)Internal resistance of tester	:DC 20kΩ/V
(4)Oscilloscope sweeping time	:H ⇒ 20μS/div
	:V ⇒ 5mS/div
	:Others ⇒ Sweeping time is specified
(5)Voltage values	:All DC voltage values

∗ Since the voltage values of signal circuit vary to some extent according to adjustments, use them as reference values.

3.INDICATION OF PARTS SYMBOL [EXAMPLE]

● In the PW board :R1209 → R209

4.INDICATIONS ON THE CIRCUIT DIAGRAM

(1)Resistors

● Resistance value

No unit	:[Ω]
K	:[K Ω]
M	:[M Ω]

● Rated allowable power

No indication	:1/ 16 [W]
Others	:As specified

● Type

No indication	:Carbon resistor
OMR	:Oxide metal film resistor
MFR	:Metal film resistor
MPR	:Metal plate resistor
UNFR	:Uninflammable resistor
FR	:Fusible resistor

∗ Composition resistor 1/2 [W] is specified as 1/2S or Comp.

(2)Capacitors

● Capacitance value

1 or higher	:[pF]
less than 1	:[μF]

● Withstand voltage

No indication	:DC50[V]
Others	:DC withstand voltage [V]
AC indicated	:AC withstand voltage [V]

∗ Electrolytic Capacitors
47/50[Example]:Capacitance value [μF]/withstand voltage[V]

● Type

No indication	:Ceramic capacitor
MM	:Metalized mylar capacitor
PP	:Polypropylene capacitor
MPP	:Metalized polypropylene capacitor
MF	:Metalized film capacitor
TF	:Thin film capacitor
BP	:Bipolar electrolytic capacitor
TAN	:Tantalum capacitor

(3)Coils

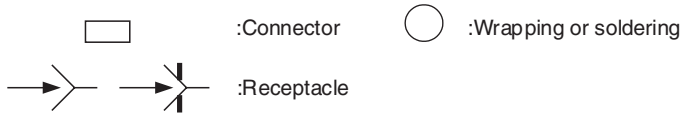
No unit	:[μH]
Others	:As specified

(4)Power Supply

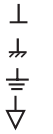
∗ Respective voltage values are indicated

(5)Test point

(6)Connecting method



(7)Ground symbol



⊥ :LIVE side ground
⏚ :ISOLATED(NEUTRAL) side ground
⏚ :EARTH ground
▽ :DIGITAL ground

5.NOTE FOR REPAIRING SERVICE

This model's power circuit is partly different in the GND. The difference of the GND is shown by the LIVE : (⊥) side GND and the ISOLATED(NEUTRAL) : (⏚) side GND.Therefore, care must be taken for the following points.

(1)Do not touch the LIVE side GND or the LIVE side GND and the ISOLATED(NEUTRAL) side GND simultaneously. If the above caution is not respected, an electric shock may be caused. Therefore, make sure that the power cord is surely removed from the receptacle when, for example, the chassis is pulled out.

(2)Do not short between the LIVE side GND and ISOLATED(NEUTRAL) side GND or never measure with a measuring apparatus measure with a measuring apparatus (oscilloscope, etc.) the LIVE side GND and ISOLATED(NEUTRAL) side GND at the same time. If the above precaution is not respected , a fuse or any parts will be broken.

◇ **Since the circuit diagram is a standard one, the circuit and circuit constants may be subject to change for improvement without any notice.**

NOTE

◇ **Due improvement in performance, some part numbers show in the circuit diagram may not agree with those indicated in the part list.**
When ordering parts, please use the numbers that appear in the Parts List.

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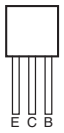
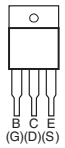
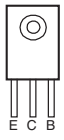
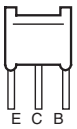
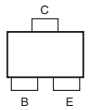
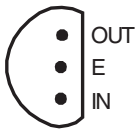
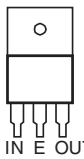
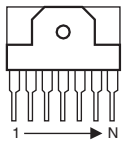
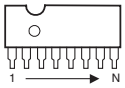
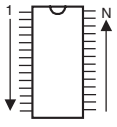
SEMICONDUCTOR SHAPES

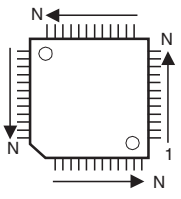
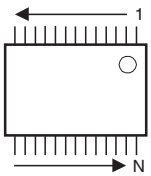
TRANSISTOR

BOTTOM VIEW	FRONT VIEW				TOP VIEW
					CHIP TR 

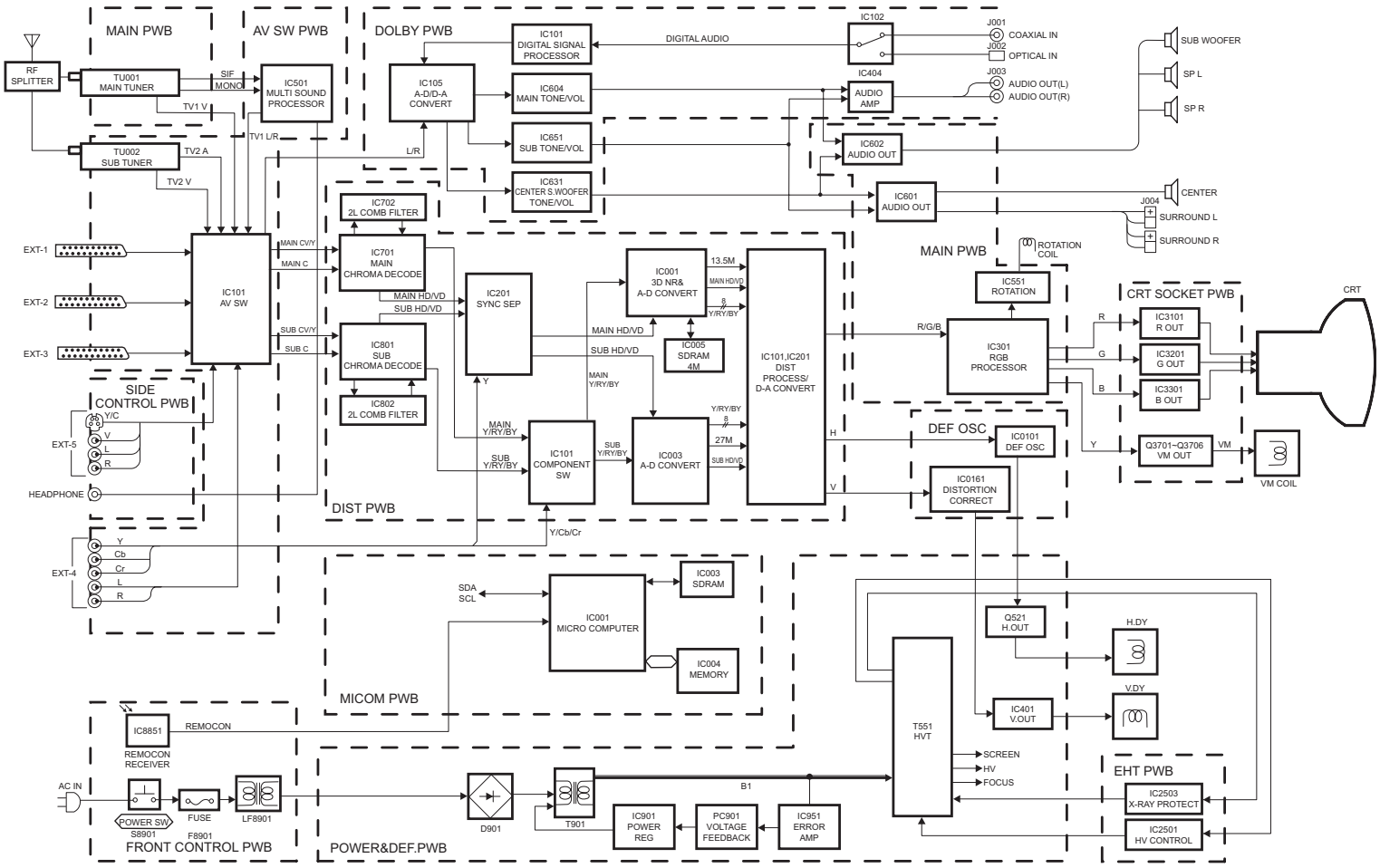
IC

BOTTOM VIEW	FRONT VIEW			TOP VIEW
				

CHIP IC

TOP VIEW		
		

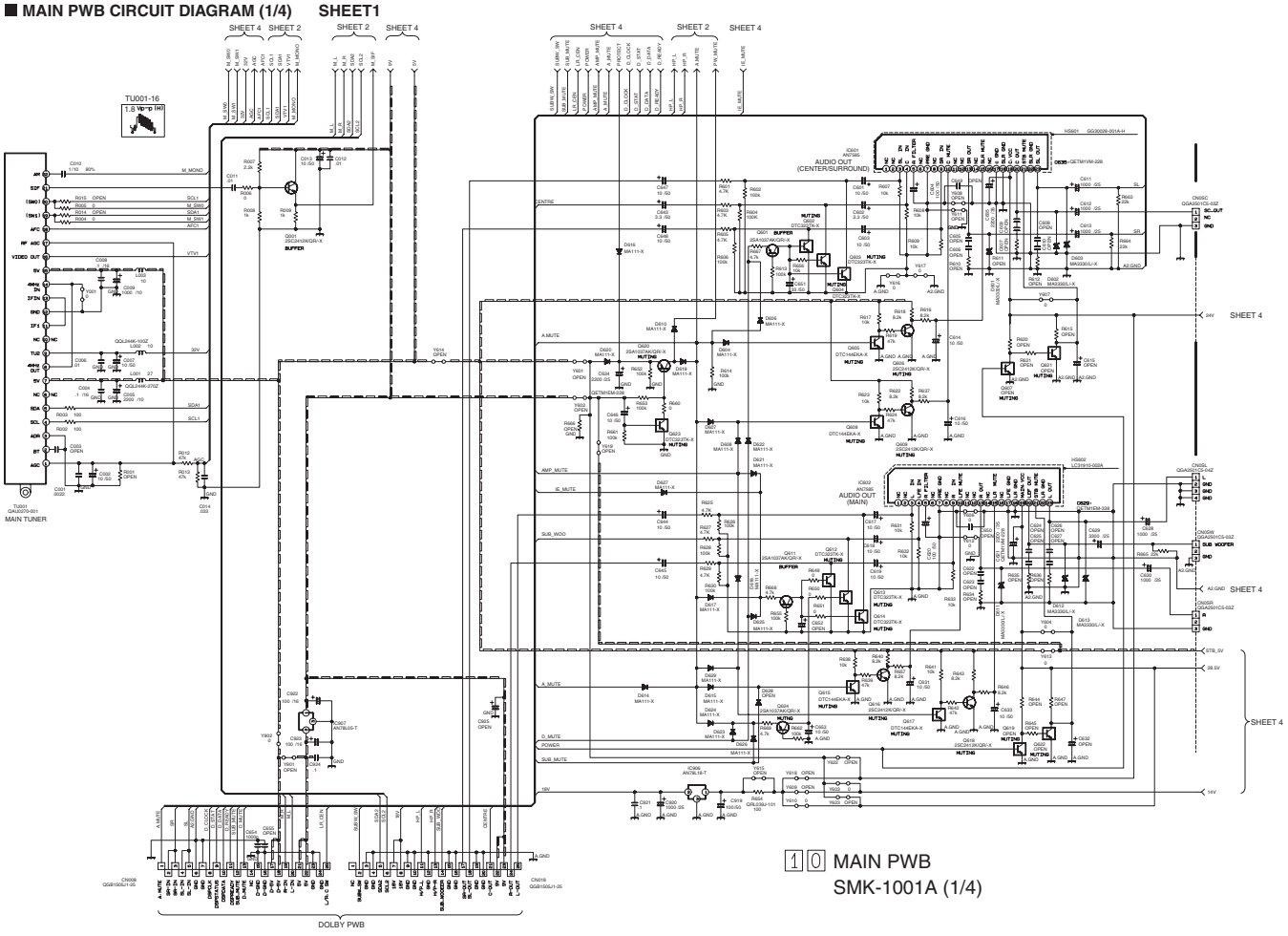
BLOCK DIAGRAM



CIRCUIT DIAGRAM

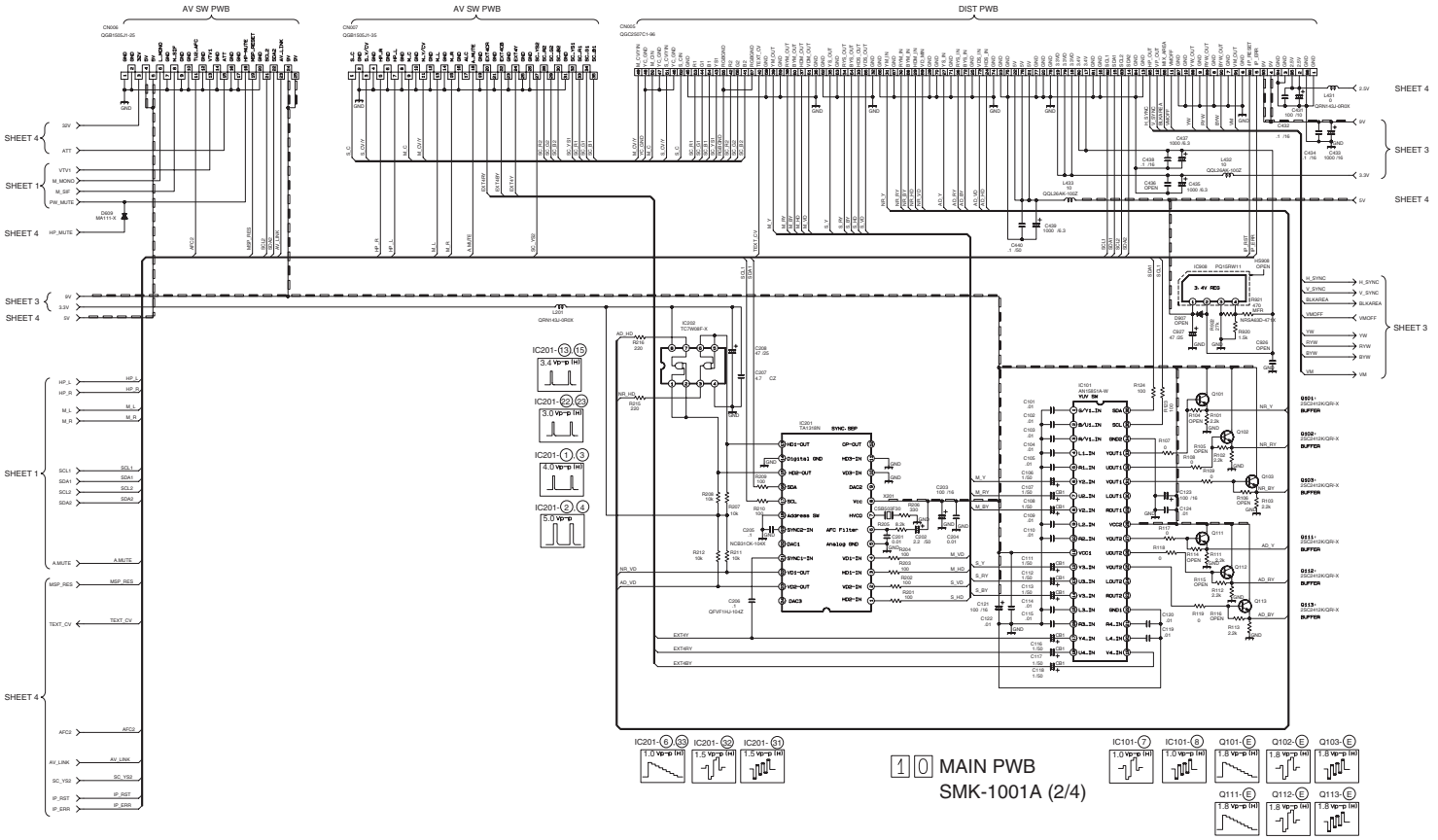
SHEET1

■ MAIN PWB CIRCUIT DIAGRAM (1/4) SHEET1



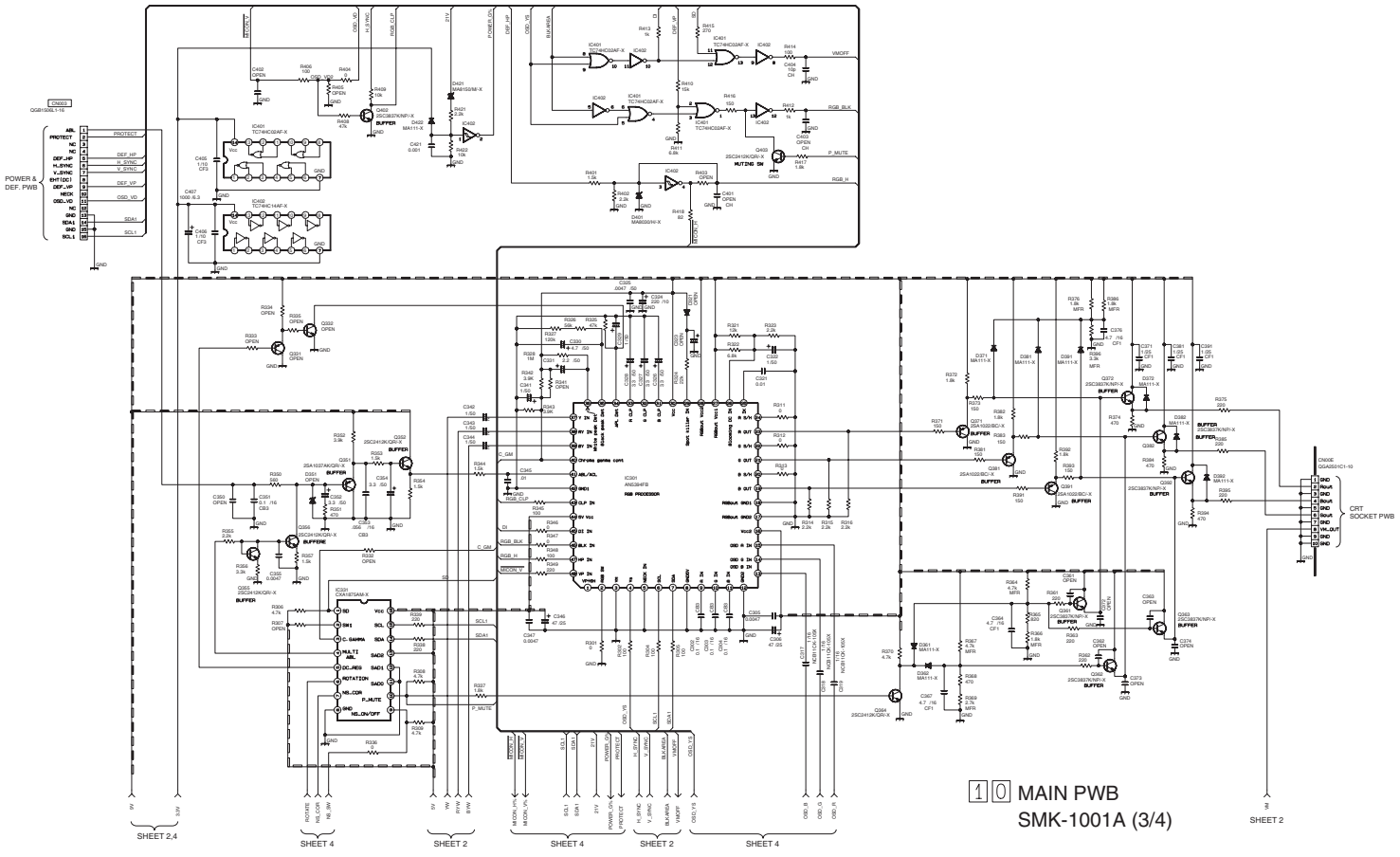
■ MAIN PWB CIRCUIT DIAGRAM (2/4) SHEET2

SHEET2



10 MAIN PWB
SMK-1001A (2/4)

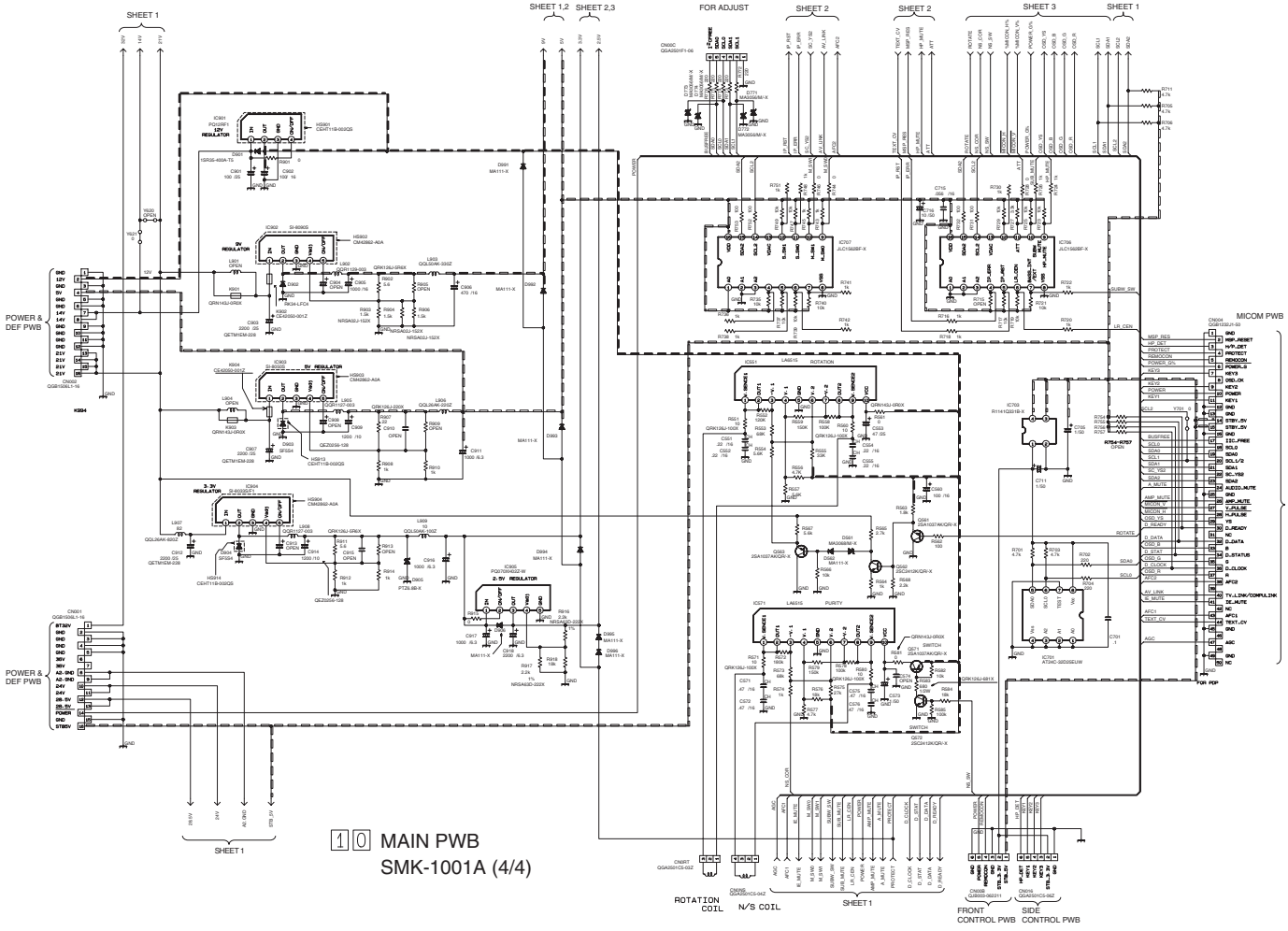
■ MAIN PWB CIRCUIT DIAGRAM (3/4) SHEET3



10 MAIN PWB
SMK-1001A (3/4)

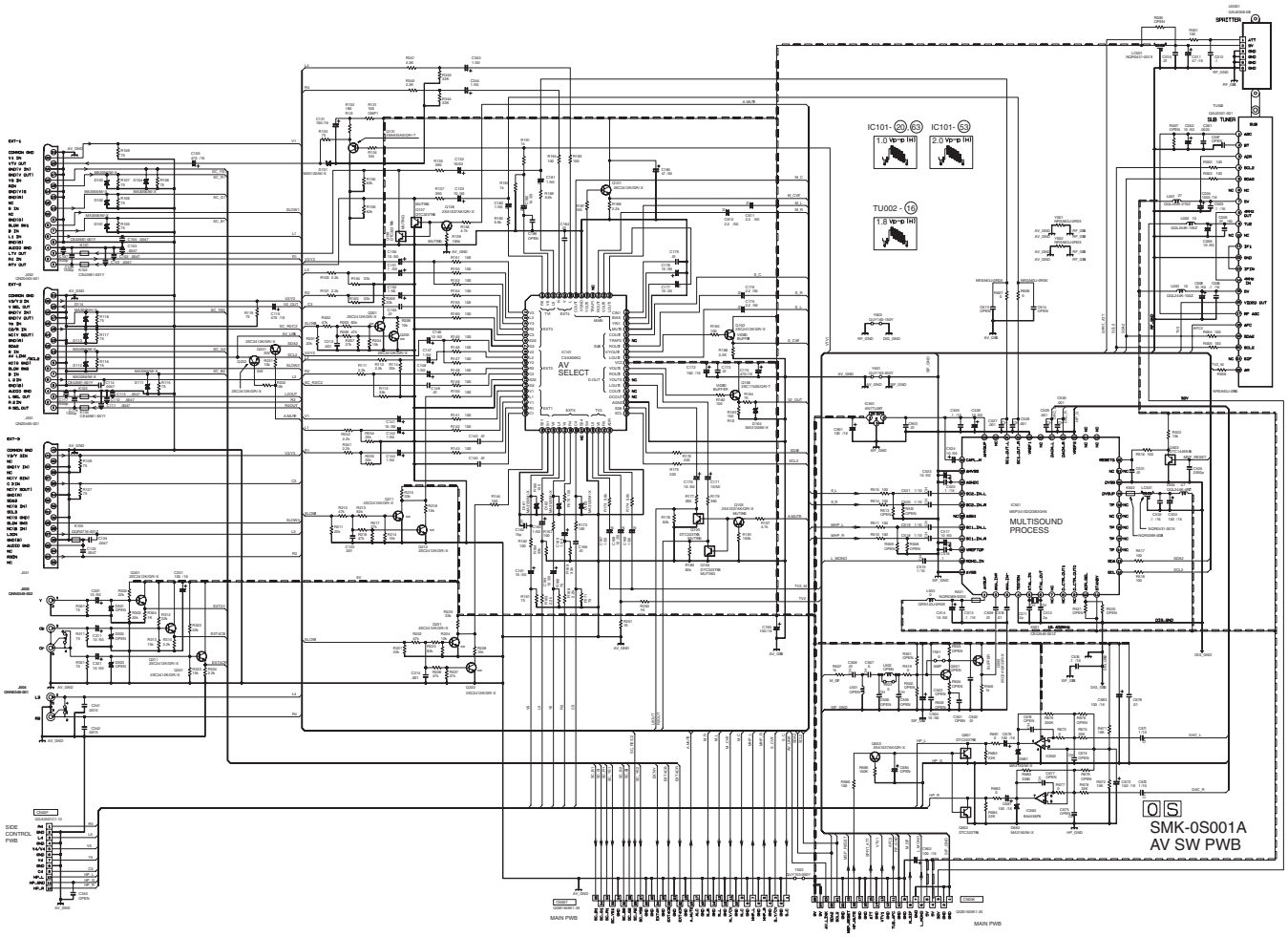
■ MAIN PWB CIRCUIT DIAGRAM (4/4) SHEET4

SHEET4

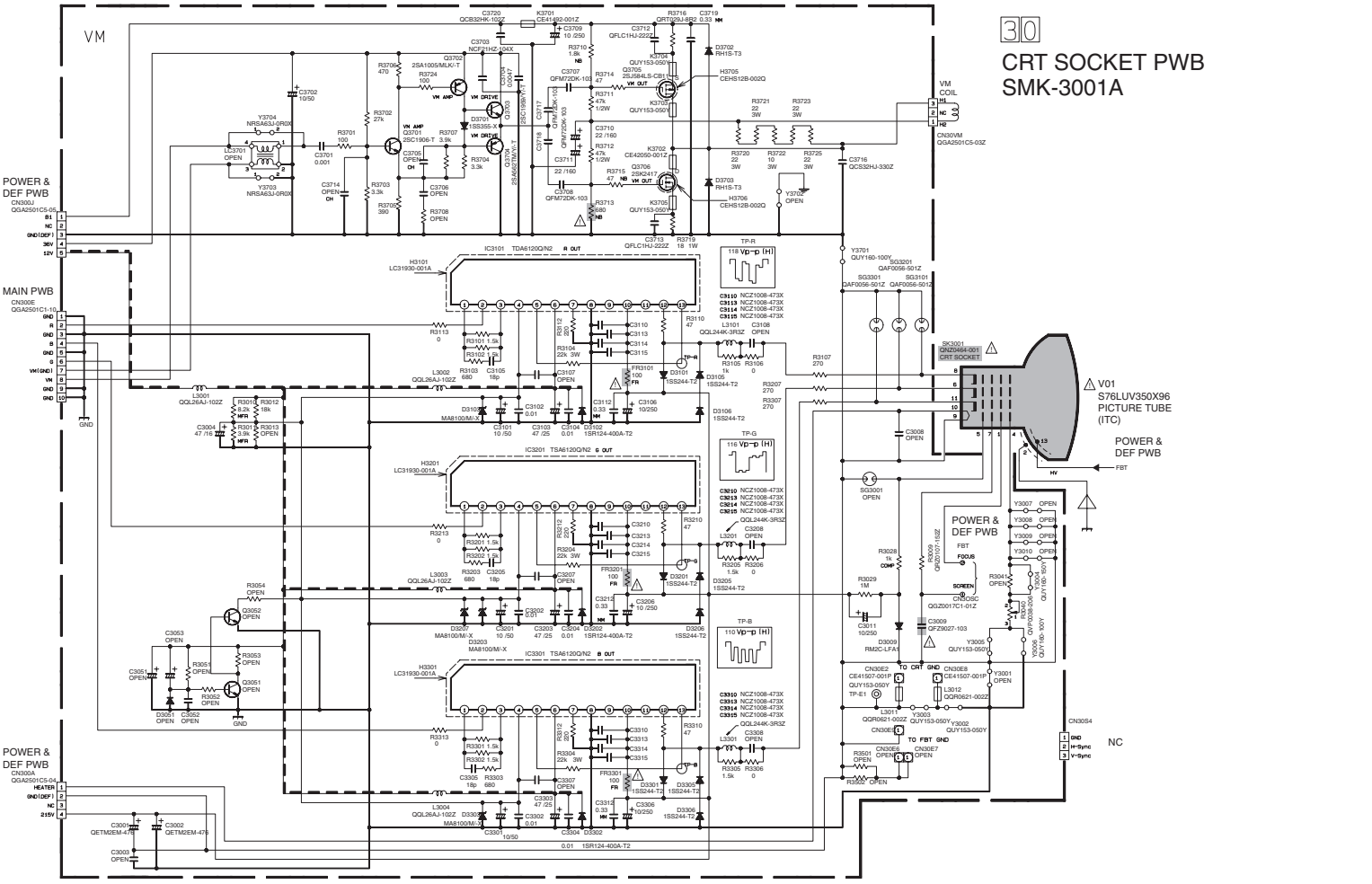


10 MAIN PWB
SMK-1001A (4/4)

■ AV SW PWB CIRCUIT DIAGRAM



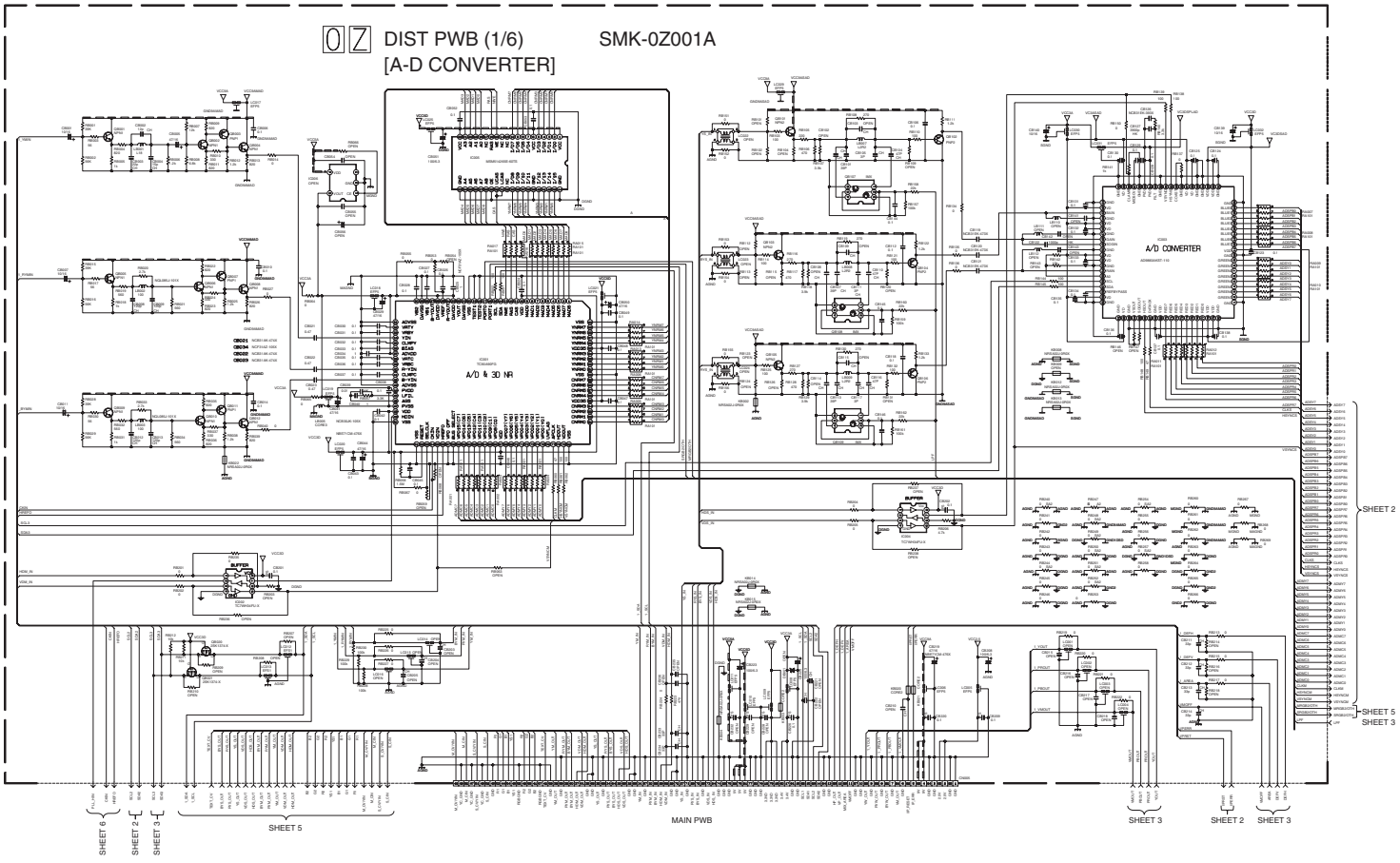
■ CRT SOCKET PWB CIRCUIT DIAGRAM



■ DIST PWB CIRCUIT DIAGRAM (1/6) SHEET1

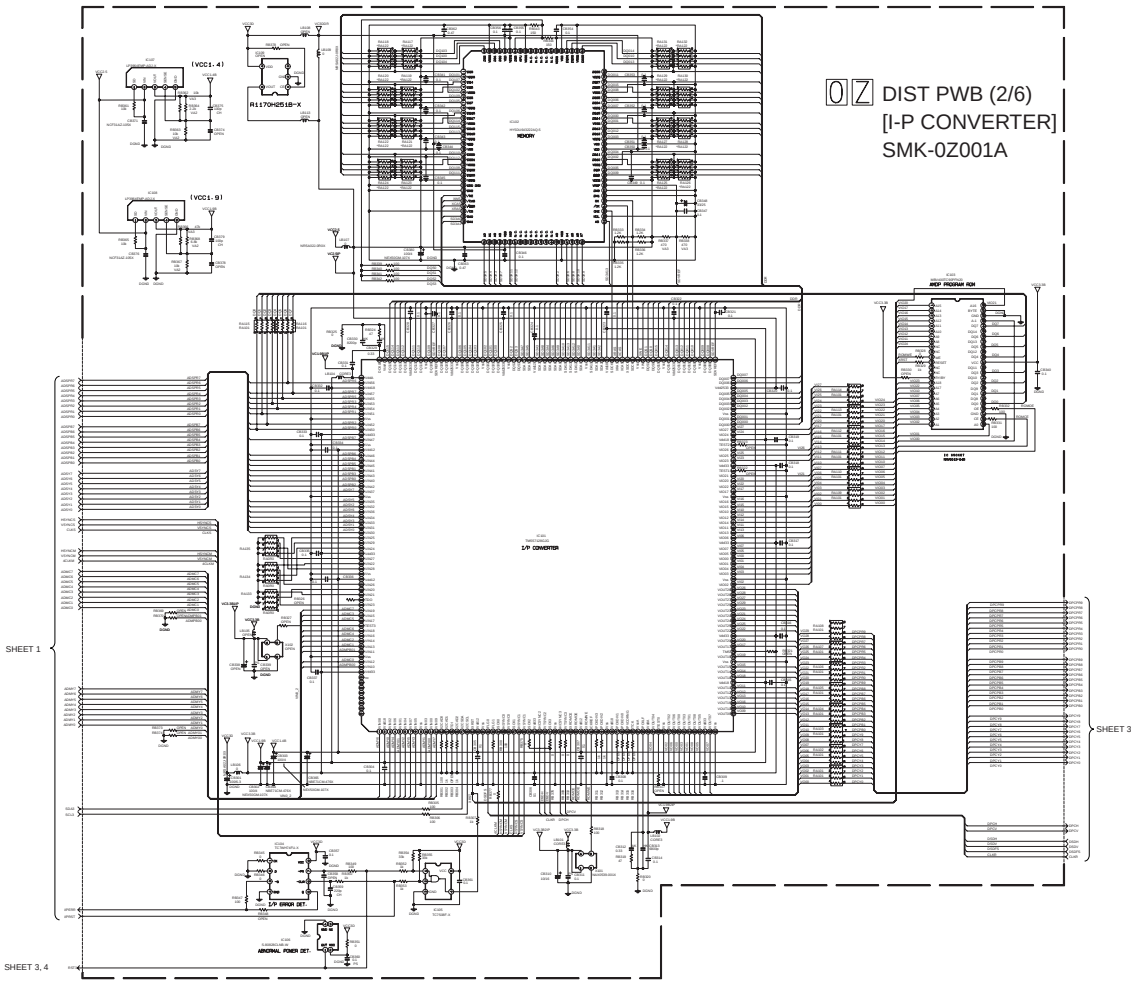
SHEET1

0Z DIST PWB (1/6) SMK-0Z001A
[A-D CONVERTER]



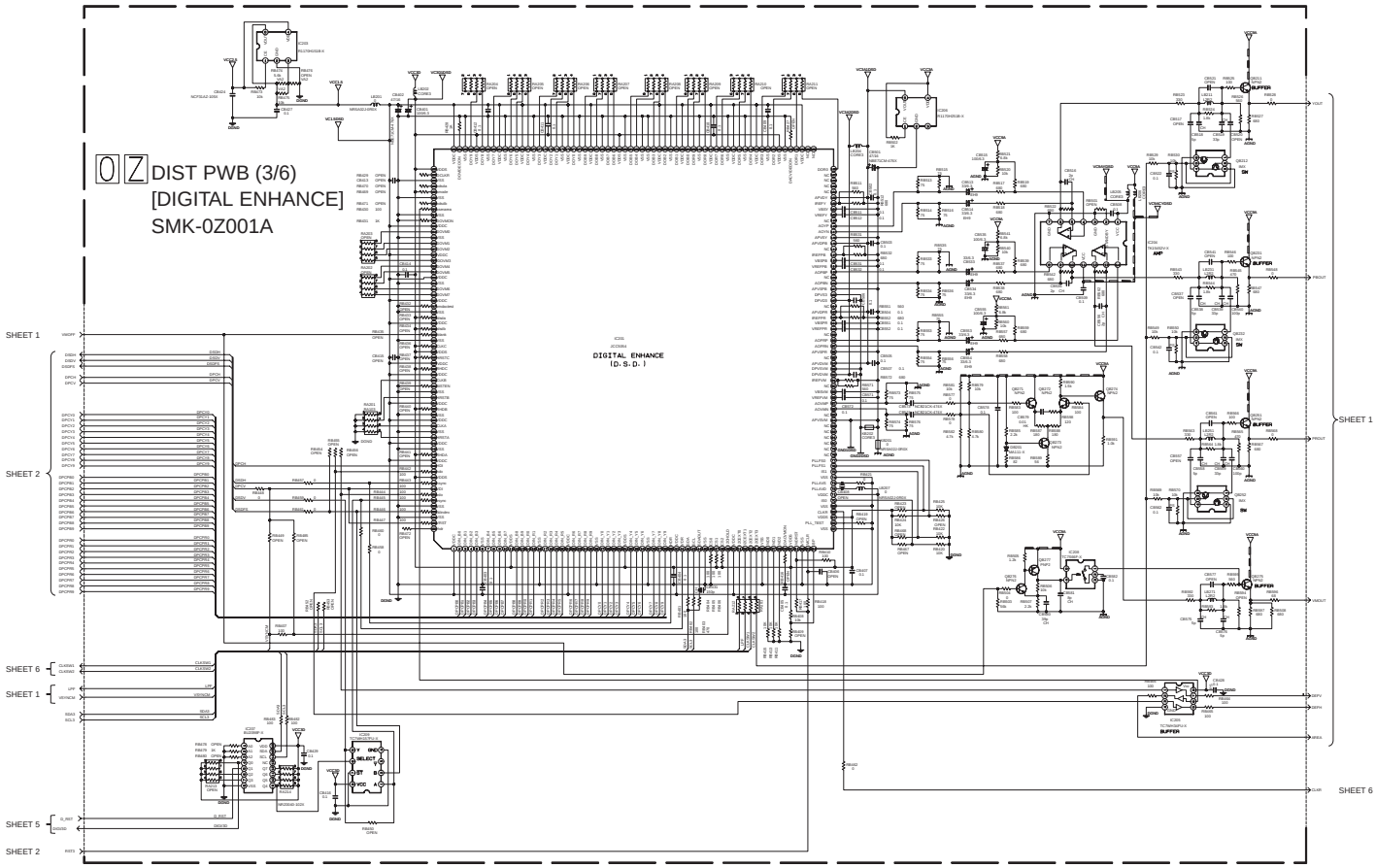
■ DIST PWB CIRCUIT DIAGRAM (2/6) SHEET2

SHEET2



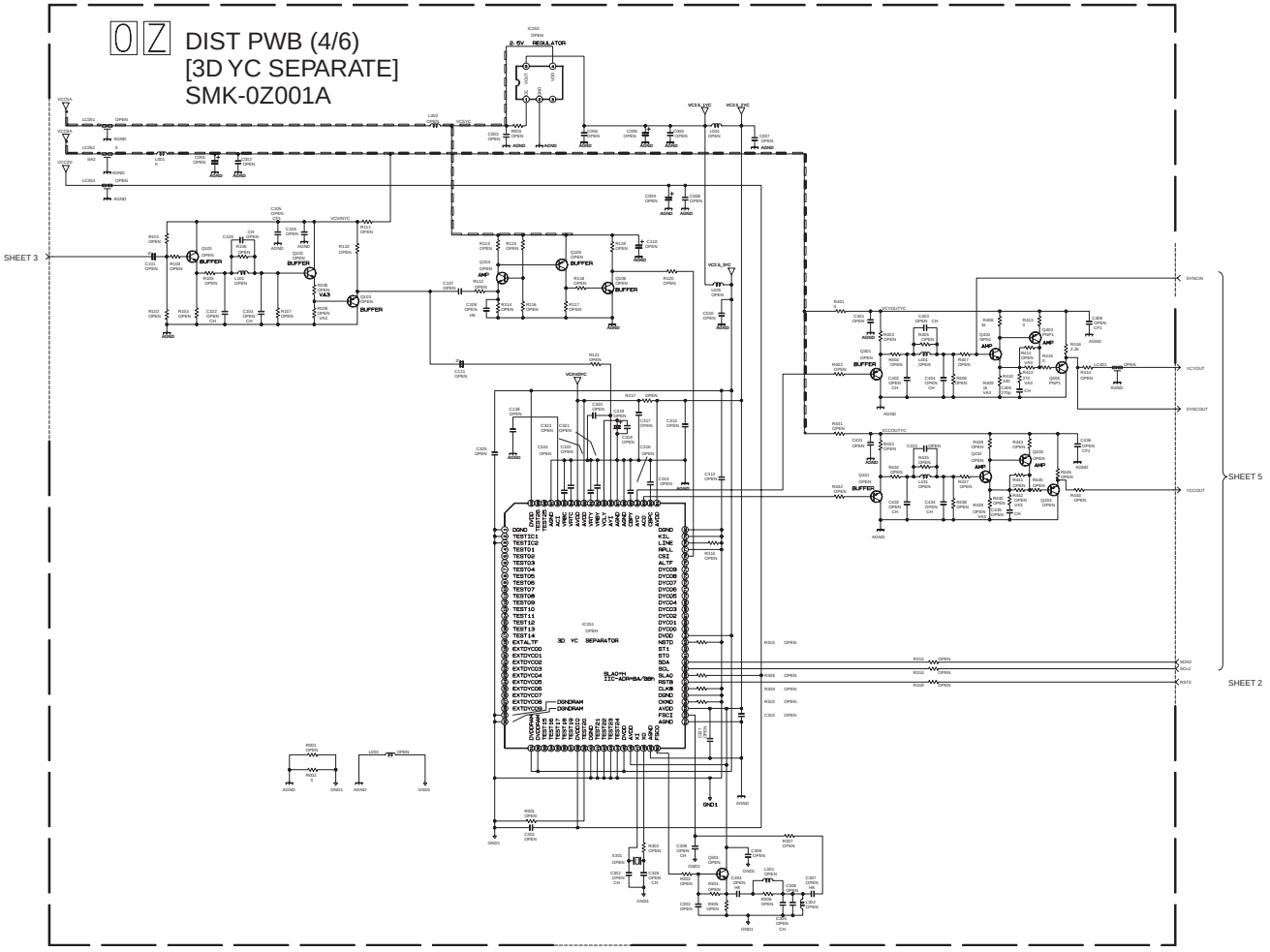
■ DIST PWB CIRCUIT DIAGRAM (3/6) SHEET3

SHEET3



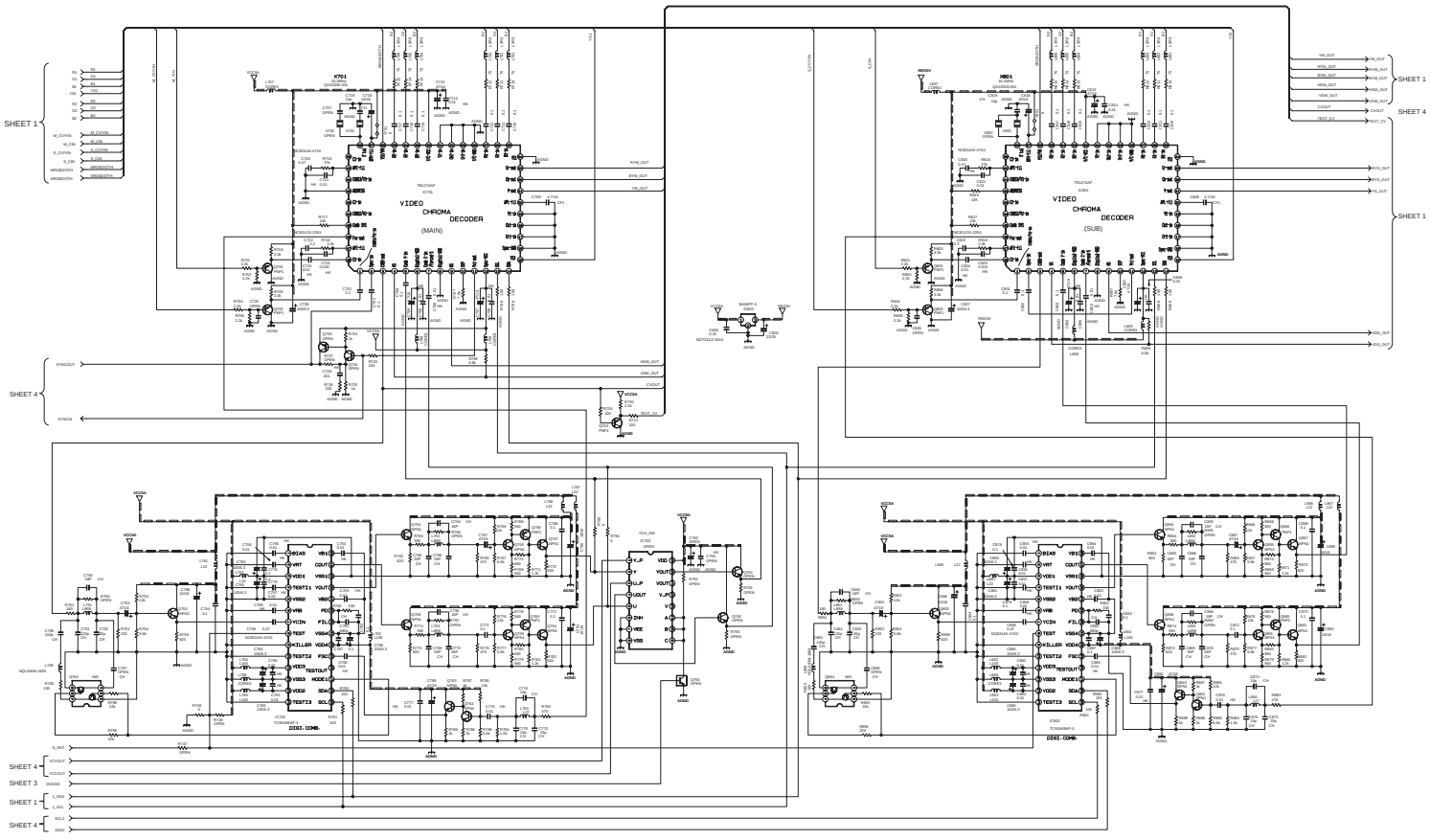
■ DIST PWB CIRCUIT DIAGRAM (4/6) SHEET4

SHEET4



■ DIST PWB CIRCUIT DIAGRAM (5/6) SHEET5

SHEET5

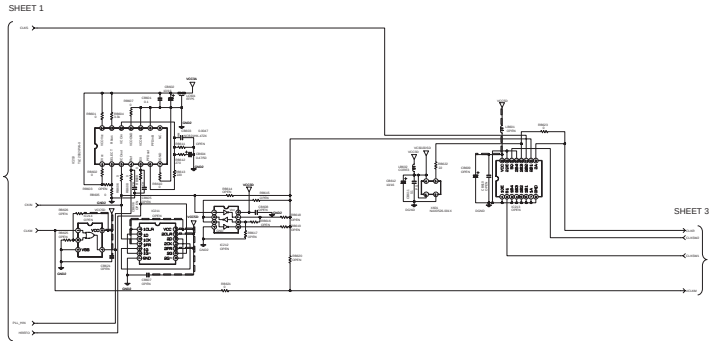


0Z DIST PWB (5/6)
[VIDEO/CHROMA DECODER]
SMK-0Z001A

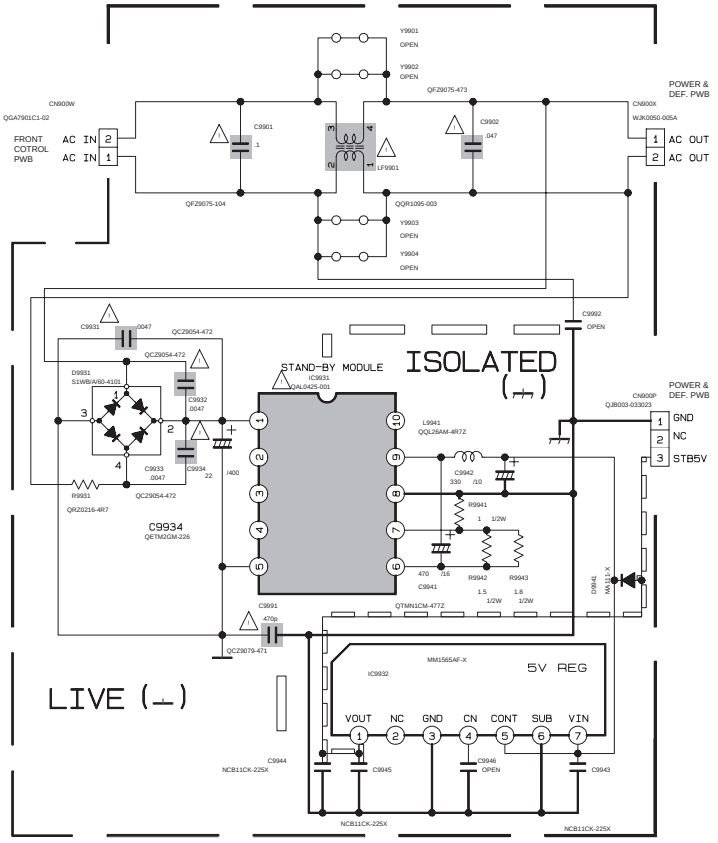
■ DIST PWB CIRCUIT DIAGRAM (6/6) SHEET6

SHEET6

0Z DIST PWB (6/6)
[H_PLL]
SMK-0Z001A

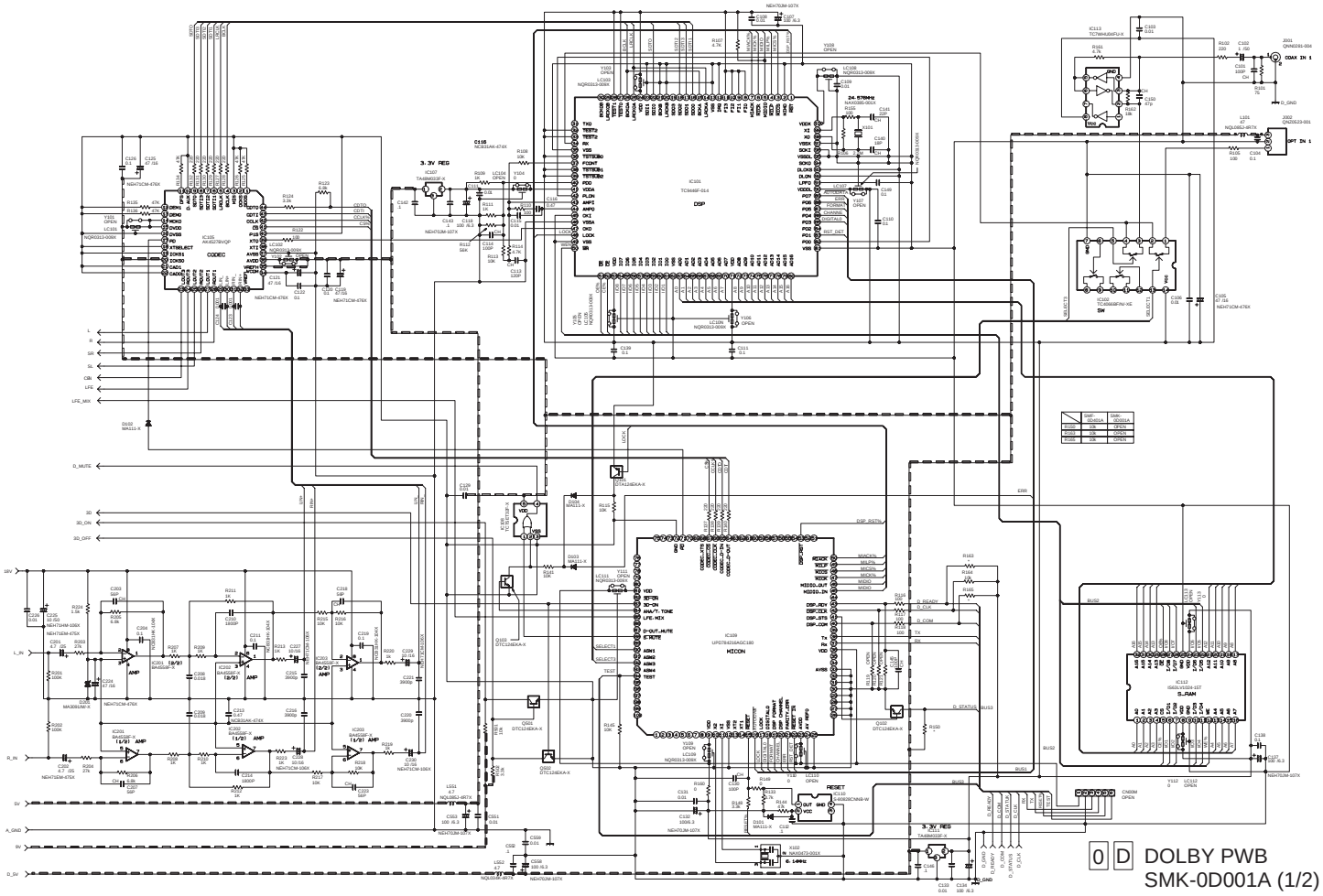


■ LINE FILTER PWB CIRCUIT DIAGRAM



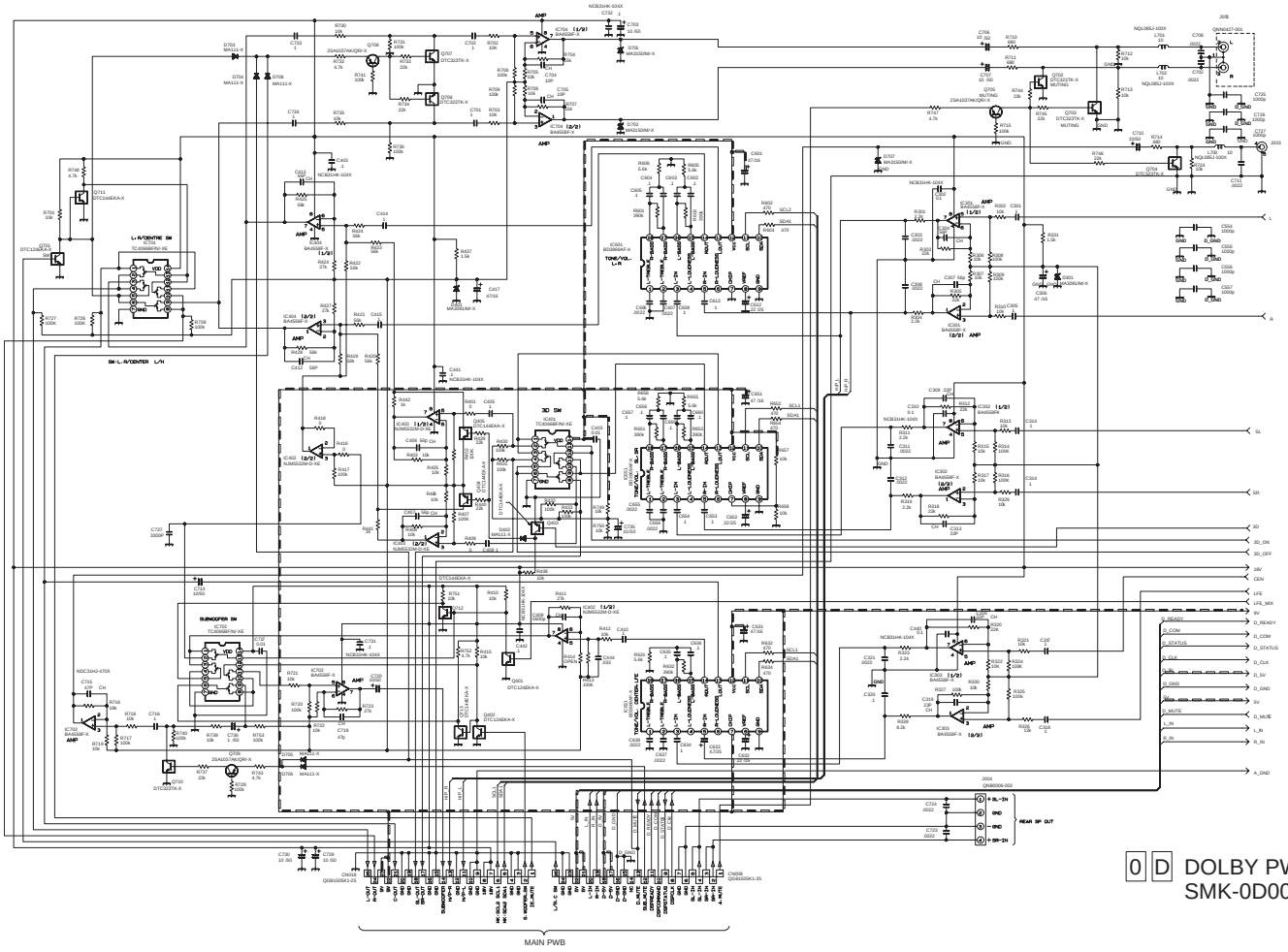
90 LINE FILTER PWB
SMK-9001A

■ DOLBY PWB CIRCUIT DIAGRAM (1/2)



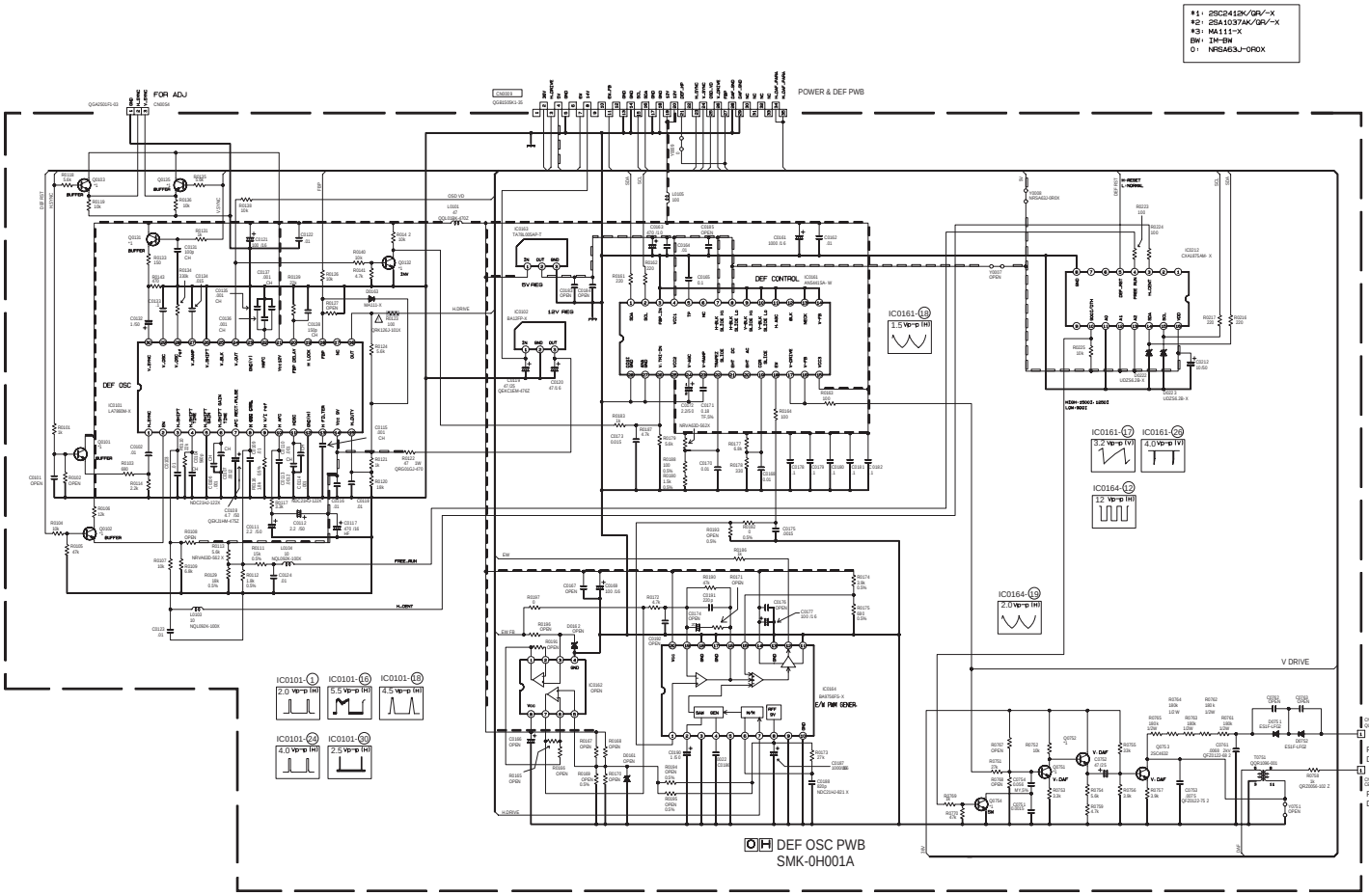
0 D DOLBY PWB
SMK-0D001A (1/2)

■ DOLBY PWB CIRCUIT DIAGRAM (2/2)

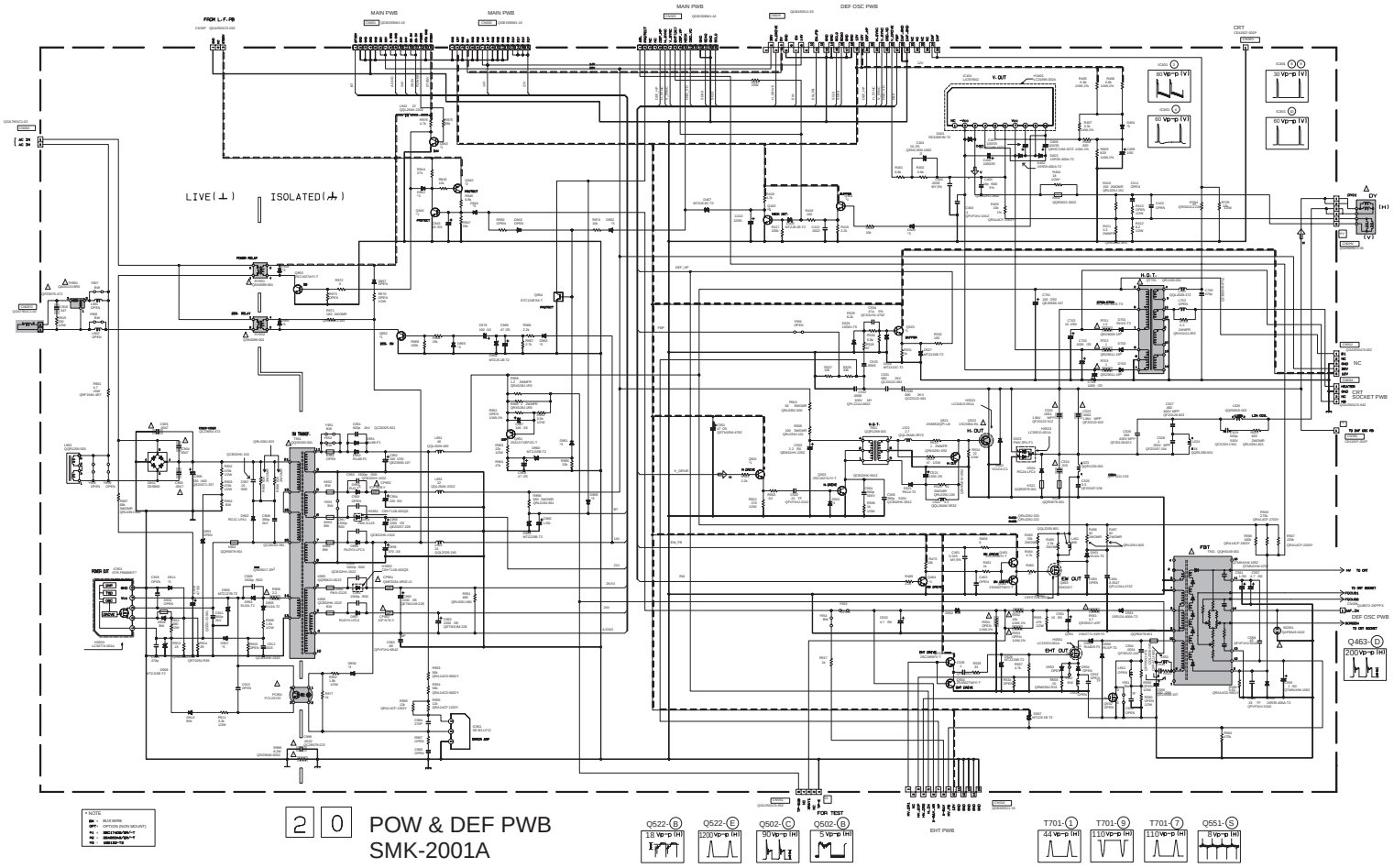


0 D DOLBY PWB
SMK-0D001A (2/2)

■ DEF OSC PWB CIRCUIT DIAGRAM

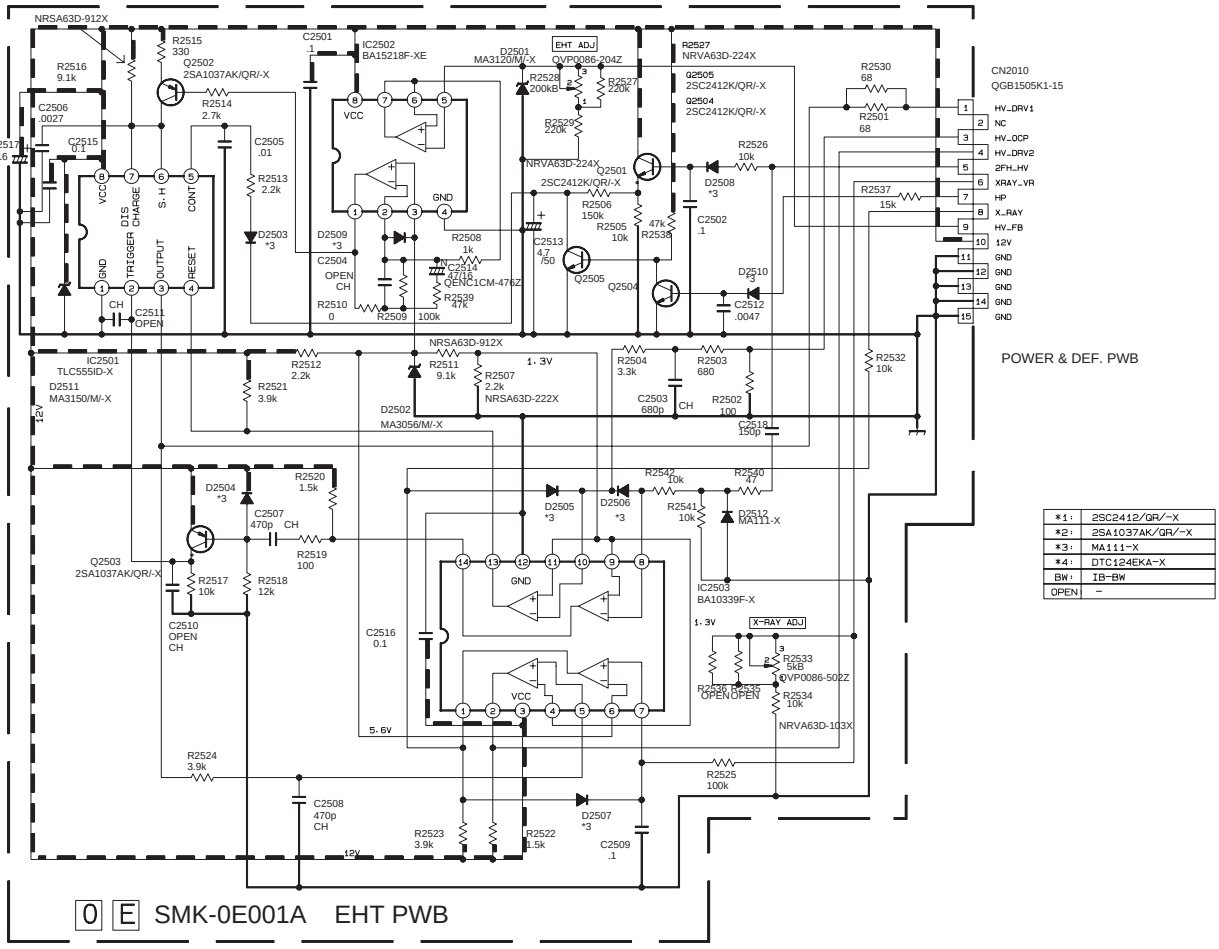


■ POWER & DEF PWB CIRCUIT DIAGRAM



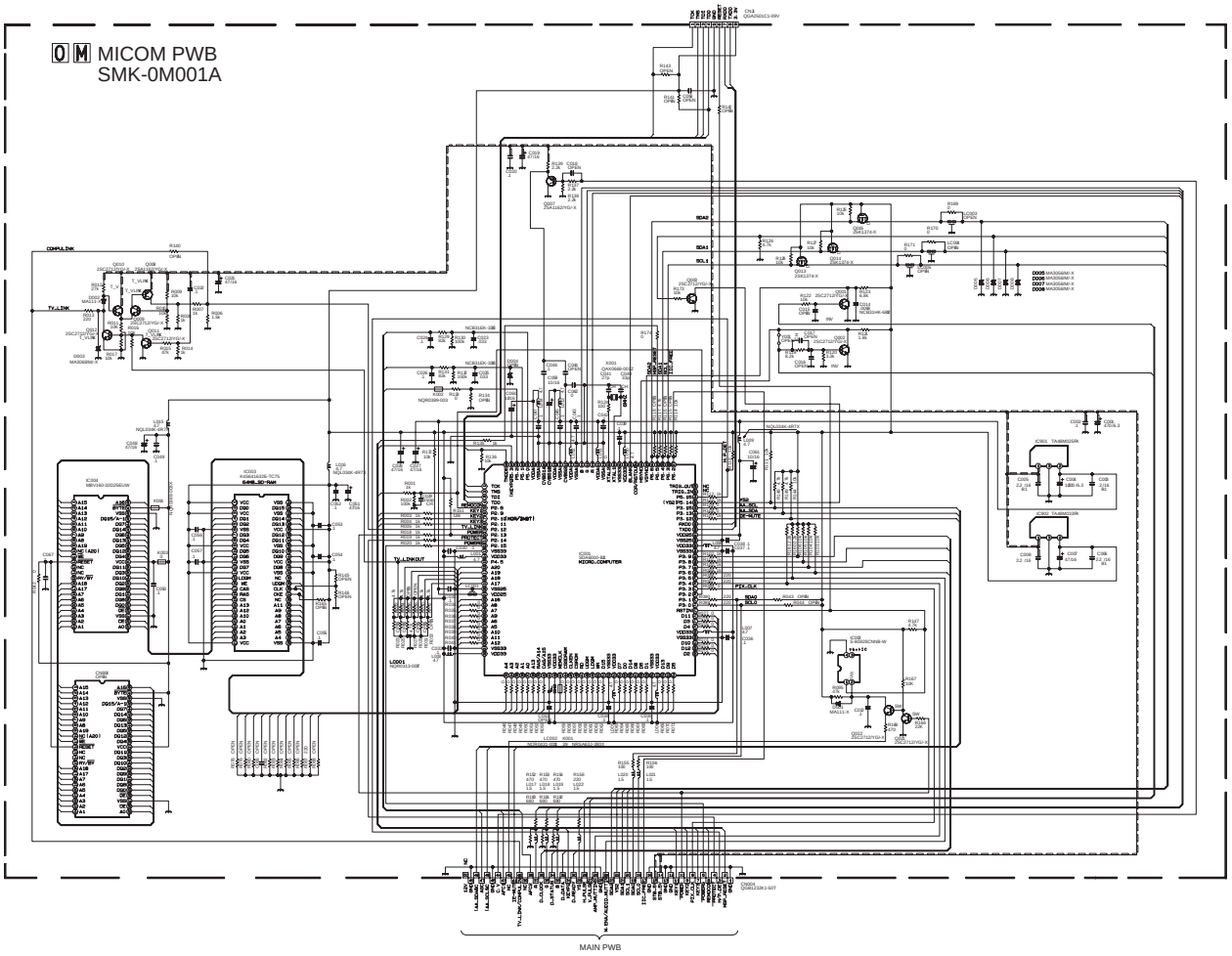
20 POW & DEF PWB
SMK-2001A

■ EHT PWB CIRCUIT DIAGRAM

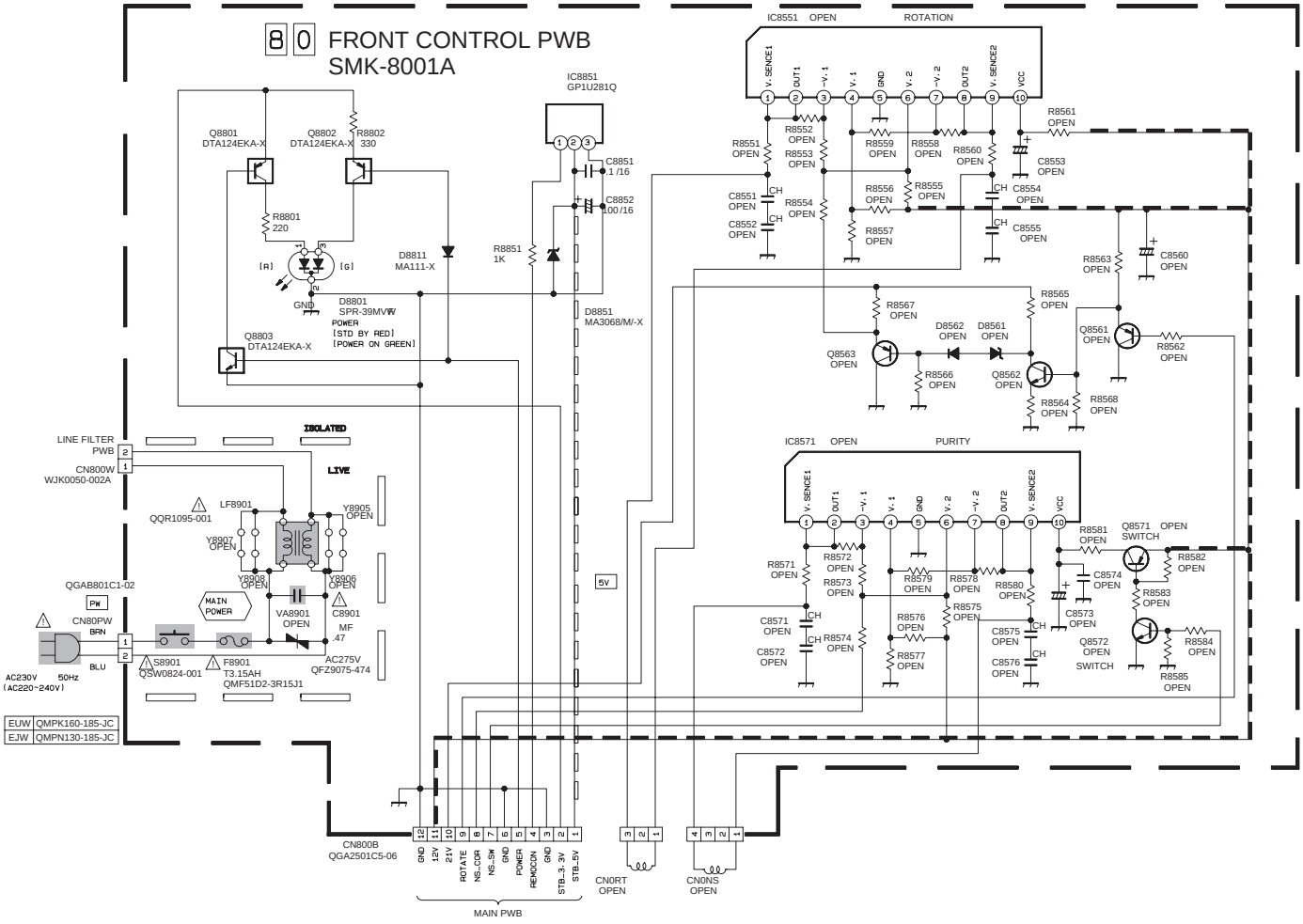


*1:	2SC2412/QR/-X
*2:	2SA1037AK/QR/-X
*3:	MA111-X
*4:	DTC124EKA-X
BW:	IB-BW
OPEN	-

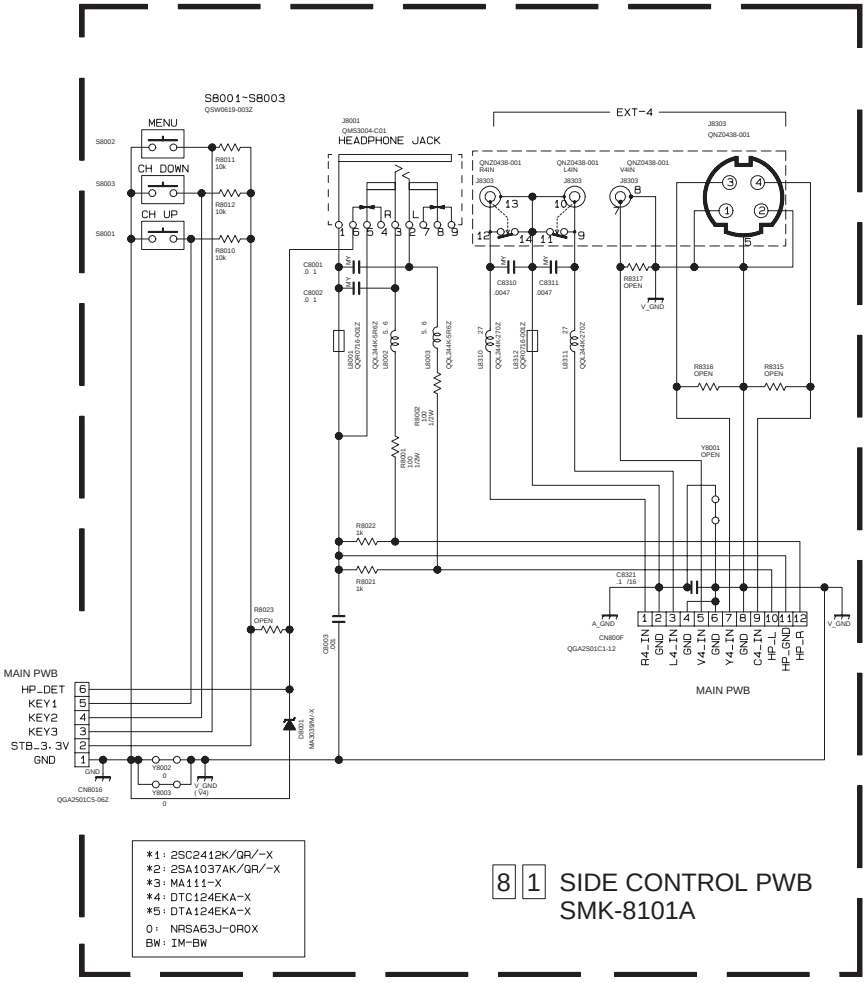
■ MICOM PWB CIRCUIT DIAGRAM



■ FRONT CONTROL PWB CIRCUIT DIAGRAM



■ SIDE CONTROL PWB CIRCUIT DIAGRAM



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